ORAL HEALTH STATUS OF AN ELDERLY POPULATION IN NAIROBI, KENYA.

ABSTRACT

Objective. To provide data on the oral health status of the elderly in Nairobi, Kenya.

Design. This was a semi-structured cross-sectional survey followed by a clinical oral examination.

Subjects and Methods. Two Nairobi suburbs, Waithaka and Riruta, were selected. The residents of the two locations are of urban low to middle class socioeconomic status. Presence of plaque, calculus, bleeding on probing, recession, mobility of teeth, carious teeth and root caries were all recorded in individuals of 45 years and over. The condition of the oral mucosa was also noted.

Results. A total of 289 respondents were interviewed. Of these, 182(63%) were from Waithaka location and 107(37%) were from Riruta location. Majority of the respondents were females 203(70.2%), with only 86(29.8) males participating in the study. The mean age was 60.6 years with a SD =12.6 and a range of 45-115 years. 142(50%) of the respondents had experienced dental problems especially when chewing. 246(85.1%) reported cleaning their teeth out of whom 132(53.9%) did it once a day, 51(20.8%) twice daily while 47(19.2%) only occasionally. 150(61.2%) used a commercial toothbrush while 87(35.5%) used the traditional chewing stick. 146(59.3%) used toothpaste, 72(29.3%) used nothing while 26(10.6%) used salt as the dentrifice of choice.

The oral examination showed presence of plaque in 249(89.9%), calculus in 237(85.6%), gingival inflammation in 212(77.4%) and recession in 227(82.5%) of the respondents. Dental erosion was only found in 2(0.9%) individuals and abrasion cavities in 31(13.6%) cases. On examination of the oral mucosa, 224(88.9%) had no visible abnormality. 9(3.6%) had an abscess, 5(2.0%) had leukoplakia, 5(2.0%) had smoker's palate, 4(1.6%) aphthous ulcers, 7(2.5%) were edentulous and 2(0.8%) had oral candidiasis. When the teeth were examined, 57(19.7%) had no caries experience. The mean DMFT was 7.173. The missing teeth component accounted for 1168(56.3%) of the total DMFT, while the Filled component was the least at 39(1.9%). The mean root caries experience was 0.817, n = 289 with 230(79.6%) having no decayed or filled roots. The mean number of mobile teeth was 3.291(n = 289) while the highest number of mobile teeth found in a single respondent was 22.

Conclusions. This study group of the elderly exhibited, poor oral hygiene, gingival inflammation and periodontal breakdown measured by recession and mobile teeth. In addition, there was a high DMFT of 7.173 mainly due to the missing teeth.
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INTRODUCTION
According to UN demographic projections, the world population aged 60 years and above is increasing rapidly. It is estimated that by the year 2025, this will be about 1.2 billion and by 2050, there will be 2 billion people above the age of 60 years worldwide, 70% of whom will be in developing countries. It is estimated that the population in Kenya aged 60 years and above currently stands at 1.3 million and will shoot to 7.2 million by the year 2050\(^1\). The majority of old people in developing countries enter old age after a life of poverty and deprivation, with poor access to healthcare and diets inadequate in quality and quantity. Studies have shown that most elderly people suffer from various problems ranging from extreme poverty, ill-health, poor nutrition, lack of adequate care, shelter, clothing, isolation, mental and physical abuse\(^2\). Many elderly people in society even in the developed world suffer from age related health problems such as hypertension, diabetes, cancer, tuberculosis, arthritis and ophthalmological diseases including poor eyesight\(^3\).

For a good quality life, the elderly require adequate nutrition and the ability to function independently. However, due to selective feeding habits the elderly are prone to macro and micronutrient deficiencies. One of the major roles of nutritional fitness is to prevent or slow down the onset of degenerative disease conditions associated with age. Some of these nutritionally related degenerative problems manifest in the mouth as loss of taste, dry mouth, burning and sore mouth, oral mucus membrane disease, temporomandibular joint pain or discomfort, periodontal diseases, osteoporosis of the alveolar bone and loss of tone of the muscles of mastication.

In recent years there has been a growing awareness in the dental profession that the dental needs of the elderly have been generally neglected and that the problem requires attention. The oral tissues are a critical part of the human body system, and the oral cavity is the gateway to the rest of the body systems. Factors associated with old age such as reduced salivary quality, quantity and flow rate, lowered immunity and the reduced ability of the body to self repair, may aggravate the process of the degradation of the oral tissues.

Oral diseases and tooth loss cause difficulties in chewing. This may in turn lead to selection of soft diets, which in most cases are composed of refined carbohydrates. This would easily predispose the elderly to malnutrition and general ill health. Other difficulties associated with poor oral health status include difficulties in speech, deformed facial profile and loss of self-esteem. In Kenya, information on the oral health of the elderly is minimal and they have generally been examined as part of another group under study. Thus the purpose of the survey was to provide data on the oral health status of the elderly as a group entity on their own since they have their own unique problems.

MATERIALS AND METHODS
Study design
This was a semi-structured cross sectional survey aimed at establishing and documenting baseline information. The study population consisted of persons aged 45 years and above and was carried out in Waithaka and Riruta locations of Dagoretti Division in Nairobi, Kenya. The Division has a total of six locations namely: Waithaka, Uthiru/Ruthimitu, Riruta (Ngando and Satellite), Mutuini, Kenyatta/Golfcourse and
Kawangware. The size of the Division is 52,000 square kilometres, and has a total population of 260,000.

**Sampling**
Two locations, Waithaka and Riruta were selected since these were the areas in which it was easier to find the people of the selected age groups at home. Furthermore the two locations have similar characteristics, urban low to middle class socioeconomic status. A total of 289 individuals were then interviewed and examined. A semi-structured interview schedule was used to collect quantitative data from the households. Dental examination and clinical assessments were carried out using a standard WHO assessment form. A dichotomous scoring system was used for plaque, calculus, recession and mobility of teeth. Gingival inflammation was recorded by checking for bleeding after running the probe along the gingival margin and waiting for 30 seconds. The oral mucosa was assessed for any presence of abnormalities. Teeth were also assessed for caries, erosion, abrasion and attrition. Root caries lesions were recorded when present. Data collected was analyzed using SPSS/PC program.

**RESULTS**
A total of 289 respondents were interviewed. Of these, 182 (63%) were from Waithaka location and 107(37%) were from Riruta location. Majority of the respondents were females 203(70.2%), with only 86(29.8) males participating in the study. 113(39.1%), 75(26.0%) and 101((34.9%) were in the ages between 45-54years, 55-64 years and 65+ years respectively (Fig 1). The mean age was 60.6 years with a SD =12.6 and a range of 45-115 years.

Exactly 142(50%) of the respondents had experienced dental problems especially when chewing. 246(85.1%) reported that they cleaned their teeth among whom, 132(53.9%) did it once a day, 51(20.8%) twice daily while 47(19.2%) cleaned occasionally. 150(61.2%) used a commercial toothbrush while 87(35.5%) used the traditional chewing stick. 146(59.3%) used toothpaste, 72(29.3%) used nothing while 26(10.6%) used salt as the dentrifice of choice (Fig 2). Plaque was present in 249(89.9%) individuals, calculus in 237(85.6%), gum recession in 227(82.5%) and bleeding gums in 212(77.4%). Dental erosion was found in only 2(0.9%) cases, abrasion cavities in 31(13.6%) and attrition in 155 (59.6%), (Table 1).

Two hundred and twenty four, (88.9%) had no visible mucosal abnormality while, 9(3.6%) were found to have an abscess, 5(2.0%) had leukoplakia, 5(2.0%) had smoker’s palate, 4(1.6%) aphthous ulceration, 7(2.5%) were edentulous and 2(0.8%) had oral candidiasis.

Fifty-seven participants, (19.7%) had no experience of caries while 16(5.5%) had one tooth that was decayed, filled or missing due to dental caries. Twenty six (9.0%) had two affected teeth hence the mean DMFT was 7.173 (Table 2). The missing teeth component accounted for 1188(56.3%) of the total DMFT, while the filled component was the least at 39(1.9%). Two hundred and thirty (79.6%) had no decayed or filled roots while 20(6.9%) had at least one decayed or filled root. Eight participants (2.8%) had two roots affected and another 8(2.8%) had three affected roots. The mean root caries experience was 0.817.
One hundred and forty one participants (48.8%) had no mobile teeth, 15(5.2%) had one mobile tooth, 23(8.0%) had two, 12(4.2%) had three, 20(6.9%) had four mobile teeth and 18(6.2%) had six mobile teeth. The mean number of mobile teeth was 3.291(n=289) while the highest number of mobile teeth found in a single respondent was 22. The majority of respondents had no dental prosthesis despite having missing teeth (Table 3).

DISCUSSION
The present data provide information on the oral health status of an elderly population of urban low to middle class socioeconomic status living on the outskirts of Nairobi. They were all over 45 years of age with a range of 45-115 years. The data shows that the majority had plaque and calculus despite 85.1% having reported brushing their teeth regularly. Gingivitis was also prevalent. Poor oral hygiene and gingivitis has been reported in many studies in Kenya although most have been among children and young adults. More than half the participants examined, brushed using commercial toothbrushes (61.2%) and toothpaste (59.3%) yet the prevalence of plaque and calculus was high. Studies involving young adults have also reported presence of plaque and calculus despite claims of daily toothbrushing. This probably means that the effectiveness of the brushing technique is inadequate and calls for the need to educate the public on the importance of good oral hygiene to slow the progression of dental diseases.

Periodontal tissue breakdown demonstrated by gingival recession was evident in 82.5% of the individuals and tooth mobility in 51.2%. These figures may seem high but the scoring was dichotomous with presence and absence being recorded. A similar prevalence of recession was reported in middle-aged Tanzanians where 71.6% had recession of 4-5mm and 48.3% 6mm and more. The latter study also reported poor oral hygiene inspite of reported regular toothbrushing.

This being the first study involving the elderly in Kenya makes any comparison difficult. However, a study done in Nyeri in 1986 involved individuals over 40 years (range examined was 2-60 years) attending Nyeri Provincial Hospital and reported poor oral hygiene which worsened with age. Periodontal disease was reported in 85% of the individuals examined. We are unable to compare our findings with this study as periodontal disease was not defined and the study population included children. One other study on a Kenyan adult population examined persons of between 20 and 60 years. They also reported an abundant presence of soft and hard deposits with gradual recession and highly inflamed gingival margins. This statement holds true also in the current study since plaque and calculus were abundant and gingival inflammation and recession prevalent.

It has been reported that the majority of rural people in Machakos retain most of their teeth in a functional status up to the age of 65 and only 0.3% were edentulous. In the present study, it was found that the level of edentulousness was 2.5%. This may seem higher than the Machakos findings but the current study examined much older individuals. The present study compares well with a Tanzanian rural population where it was reported that 2.4% were edentulous. Studies done in Tanzania have reported similar findings of abundant plaque and calculus,
prevalent gingivitis and recession in their adult population. This presentation may be the form destructive periodontal disease takes in populations in this part of the world.

Caries experience was low but DMFT was high due to the missing teeth. Root caries were also not prevalent. This high DMFT probably implies that extraction has been the treatment of choice in this population because of the unavailability of dental services and cost of dental treatment. There was evident poverty in the population studied. In Tanzania, tooth loss was also common the older the population.

It appears that periodontal destruction in this region may be mainly by recession as reported in some studies on adults. Abundant amounts of soft and hard deposits with marked gingival inflammation is also a common finding. Baelum and Scheutz after reviewing several studies done in this part of the world have suggested that the essential characteristic of periodontal breakdown in Africa is that of a gradual recession of the highly inflamed gingival margin. This statement corroborates the findings of the present study.

CONCLUSIONS

This study group of the elderly exhibited a high DMFT of 7.173, with a poor oral hygiene, high prevalence of gingivitis and periodontal destruction exhibited by gingival recession. The reported toothbrushing habits did not correlate with the soft and hard deposits found. The lack of dental prostheses despite a high level of missing teeth is probably a sign of unavailable dental services as well as poverty. The government needs to address these issues of the elderly especially in terms of provision of dental services and social support systems. The inability to chew properly may eventually lead to poor feeding habits, poor nutrition and ill health.

ACKNOWLEDGEMENTS

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REFERENCES


Fig. 1. Age distribution of respondents.
Figure 2. Distribution of pupils according to DMF score.

- Tooth paste: 0%
- Salt: 11%
- Charcoal: 0%
- Soap: 0%
- nothing: 60%

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