

Oral Health Status and Treatment needs of institutionalized elderly and disadvantaged population in Fiji (1997)

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Abstract: Information on the oral health of institutionalized elderly populations in a number of countries is available but, no data is available nor published on the elderly population of Fiji. A pilot survey was carried out at the nursing homes in the Suva area. The aim of this study was to investigate the dental status and treatment needs of institutionalized elderly people. Examiner was calibrated and consent approved from the relevant institutions. This study found that residents were institutionalized, because family members could not care for them; did not receive any form of financial assistance and therefore totally relied on the institution; generally had medical problems such as neurological disorders, cardiovascular disease and diabetes. Generally had poor oral health status such as root stumps, many missing teeth, calculus and shallow pockets were common, oral hygiene practices were poor, high demand for dentures/or the dentures were not clean, some cases of leukoplakia were found and there was an urgent need for the dental profession to deliver dental care. Recommendations include issues in developing a supporting environment, provision of adequate and appropriate access, community education and skill development, workforce development and research in geriatric dentistry in Fiji. (PHD, 2003; 10 (1), Pages 35-40)

Introduction

Fiji is a multi racial and multicultural society. Ethnic Fijians comprise approximately 50% of the population, Indo-Fijians 46% and the remaining 4% comprised of Europeans, Chinese and Pacific Islanders. The total population in 1996 was approximately 767,200; of this total population, 2.9% were elderly. Elderly people can be broadly categorized into (a) institutionalized or non-institutionalized (b) homebound and (c) functionally independent. Ettinger and Beck went on to divide geriatric patients into: -

1. The Frail Elderly

'Individuals who have chronic debilitating physical, medical and emotional problems and a loss of their social support system so that they are unable to maintain independence without continued assistance from others. The majority of these people live in the community with support services, a minority are institutionalized.'

2. The Functionally Dependent

'Individuals whose capacities are so impaired by chronic debilitating physical, medical and/or emotional problems that they are unable to maintain independence. These persons are either homebound or institutionalized.'

Information on the oral health of institutionalized elderly populations in a number of countries is available but, no data is available nor published on the elderly population of Fiji. Health professionals in many countries are confronted with a reduction in workload in relation to treatment need for younger age groups of the community, as a consequence from a reduction in birthrate, and a change in endemic dental disease incidence.³ At the same time, many countries, including Fiji, are entering a period of growth in the numbers of elderly (>65 years), brought about by an increase in life expectancy to an average of 70 years from 65 years in mid 1980's.⁴

Main problems associated with ageing are edentulousness, unhealthy periodontal and mucosal tissues.⁵ Surveys carried out in Europe and North America over the past 25 years support these observations.^{6,7,8,9}

However, comparison of results presents problems in view of the different epidemiological methods used, leading to variations in sampling and in examination procedures.³ Therefore in order to have some basic data on the oral health status and the dental needs of the institutionalized elderly, a pilot survey was carried out at the nursing homes in the Suva area. Father Law Home (male residents only) and the Home of Compassion (female residents only) is governed by the Catholic Church of Fiji through grants and donations from companies and individuals. The Old People's Home is a government institution under the Ministry of Health caring for female and male residents. The aim of this study was to investigate the dental status and treatment needs of the institutionalized elderly.

Specific objectives of the study were to:

1. Determine the social, financial and medical status of those examined.
2. Determine the prevalence of dental caries using the DMFT index.
3. Determine the prevalence of periodontal disease using the CPITN index.
4. Measure the prosthetic needs of then institutionalized elderly and examine the denture status.
5. Examine the mucosal health of the institutionalized elderly.
6. Present baseline data on the oral health status of the institutionalized elderly in Fiji.

Methods

All 84 long stay elderly and disadvantaged residents at the 3 institutions were interviewed and examined. The School of Oral Health at the Fiji School of Medicine and the Medical Superintendent of the institutions granted ethical approval for the study. Confidentiality was observed by using a coding system.

A solo examiner used a pen light source (Eveready, U.S.A), mouth mirror, conventional dental explorer, and WHO probe to examine subjects at their place of residence.

Radiography was not used, and teeth were not dried cleaned or scaled prior to examination.

Examiner was calibrated according to the diagnostic criteria and recording protocols employed for coronal and root surface caries recommended by the World Health Organisation¹⁰ and Banting et al¹¹ respectively. Coronal caries was recorded as present when a lesion in a tooth had a detectably softened floor, undermined enamel or softened wall, or when a restored tooth contained one or more areas which were decayed. When any doubt existed, caries was not recorded as present. Root surface caries was recorded if a discrete, discolored, soft area either wholly on the root surface or involving the amelocemental junction was present. When a single lesion involved, both the coronal and root surfaces or restoration, its most likely site of origin was recorded.

Periodontal status and treatment needs were assessed using the Community Periodontal Index of Treatment Needs (CPITN),¹² of index teeth. Soft, loose debris was rinsed from dentures before they were examined. Dentures were evaluated according to the hierarchical system used by Murray Thomson et al¹³. Where a given denture required more than one modification; that which involved the most resources was specified. Soft denture liners were not included as a treatment option. Dentures were considered to need replacement when vertical dimension was unsatisfactory and the occlusion was inappropriate. Relining was the treatment of choice when only retention and stability were impaired.

Differential diagnosis of mucosal lesions was by visual means alone and mucosal lesions were defined according to the guide published by the World Health Organisation¹⁴. If this was inadequate, then the definitions by Regezi and Scubba¹⁵ were used. Demographic variables, length of stay, oral hygiene practices, last dental visit, financial capacity, systemic conditions and medications were also noted.

Table 1 - Distribution of residents according to institutions, gender and ethnicity

Institution	Sex	Fijian	Indian	Others	Total
Samabula – Old People’s Home	Male	8	12	4	24
	Female	12	17	1	30
Home of Compassion	Male				
	Female	4	4	7	15
Father Law Home	Male	2	2	11	15
	Female				
Total		26	35	23	84

Results

Of the 84 individuals examined, 45 were female and 39 were males. Sample participants were dominated by Indians (35), followed by Fijians (26) and other races (23) as shown in Table 1. Many residents were from the Old People’s Home in Samabula, which is a government-owned institution.

Table 2 - Chronic systemic conditions affecting the institutionalized elderly.

Medical condition	% of participants
Nervous system (senile)	22
Circulatory system, Hypertension, Ischemic and other heart disease	22
Diabetes	16
Nil	13
Deafness and other physical disability	11
Respiratory system	2
Musculoskeletal system, arthritis	2

Only 13 % of the elderly living in the institutions had no medical condition. The most common of type illness among the residents was neurological disease (22 %), cardiovascular disease (22%) and diabetes (16%) as indicated in Table 2.

Many residents (41) came to live in the institutions because no one cared or presence of some form of disability (18) as shown in Table 3. There was no direct source of financial support for 61 of the residents and were totally dependent on the institution.

Table 3 - Reason for being institutionalized and financial assistance

	Reasons	# of individuals
Reason for institutionalised	No one to look after/or no home	41
	Disability	18
	Rejected by family members	12
	Other	13
Source of financial assistance	Family	17
	Government	5
	Other	1
	None	61

Coronal Caries

Table 4 shows the distribution according to DMF teeth by age. The missing component dominated in the 41 years and over group and decayed teeth contributed 0.7 to the DMF index for all ages combined. The mean DMFT values increased with age.

Table 4 - Coronal and root caries by age

Age (yrs)	Coronal Caries			DMFT	Recession	Root Caries	
	Decayed	Missing	Filled			% of total surfaces affected	# of surfaces restored
20-30	0.8	0.8	1.0	2.6	2	-	-
31-40	0.7	11.0	1.2	12.9	3	10	2
41-50	0.4	17.6	6.5	24.5	7	29	2
51-60	0.8	18.8	6.2	25.8	4	43	3
61-70	0.9	24.6	1.3	26.7	2	6	1
70+	0.4	20.8	0.6	21.8		12	-
All subjects	0.7	15.6	2.8	19.1			

Root Surface Caries

Table 4 also shows the number of teeth with root caries, according to age. Gingival recession increased with age

Cheek biting and traumatic ulcers were usually associated with denture wearing. Of the 84 subjects examined, 60% had no lesion; 13% were leukoplakia, 6% tissue tongue

Table 5 – Community Periodontal Index of Treatment Needs

# of subjects	CPITN status					Treatment Need			
	0	1	2	3	4	TN0	TN1	TN2	TN3
	4	6	17	11	6	3	14	17	9
%	9	14	40	25	14	7	33	40	21

and later decreased due to loss of teeth. Age groups most affected by root caries are between 41 60 years with 72% of the total root caries surfaces.

The data on CPITN are summarized in Table 5. Only 9% of the individuals had healthy (scored 0) periodontal tissues; 14% had bleeding on probing (score 1), 40% had calculus (score 2), 25% with shallow pockets (score 3) and 14% with deep pockets (score 4). Seven percent of subjects did not need any treatment (TNO), 33% required oral hygiene instruction (TN1), 40% required prophylaxis (TN2), and 21% required complex treatment (TN3).

Prosthetic use and denture type

About 63% of edentulous subjects did not wear any denture and the remaining 37% had full upper and lower dentures. Even though some participants were partially

Table 6 - Treatment need, base material, by type of dentures

Treatment Need	Denture type		
	Full upper (n=17)	Full lower (n=15)	Partial lower (n=2)
Remake denture	3 (12)	1 (7)	0
Reline base	2 (11)	1 (7)	0
Replace teeth	1 (6)	1 (7)	0
Repair base	1 (6)	1 (7)	0
Adjust base			
Remove calculus	7 (41)	10 (67)	2 (100)
None	3 (18)	1 (7)	0
Base material Plastic	17	15	0
Vulcanite			
Cast metal			

edentulous, only 5% had full upper and partial lower dentures while 95% had no dentures.

Most dentures required some treatment. Table 6 shows that sixty seven percent of the full lower dentures needed calculus removal compared to 41% of the upper denture. Other treatment needed included the remaking, relining, replacement of teeth and repairing of upper and lower denture base. All of the dentures were made from acrylic resin.

Table 7 presents the results of the mucosal examination. Leukoplakia was not differentiated according to its various clinical presentations but was noted as being present when a white patch or plaque on the oral mucosa could not be characterized clinically as any other mucosal lesion.

and 3% had angular cheilitis, cheek biting, fibromatous lesion and other lesions respectively.

Table 7 - Mucosal lesions present in sample (N=84)

Type of lesion	# affected (%)
None	51 (60)
Leukoplakia	11 (13)
Tissue tongue	5 (6)
Angular cheilitis	3 (3)
Cheek biting	3 (3)
Fibromatous lesion	3 (3)
Other lesions	3 (3)
Traumatic ulcer	2 (2)
Obvious candidiasis	2 (2)
Atrophic glossitis	1 (1)

More than half of the sample (53%) had healthy denture bearing area. Flabby ridges were found in 5 individuals; other conditions such as denture stomatitis and irritative hyperplasia were also found.

Table 8 - Conditions of denture-bearing tissues

	Present # (%)	Absent # (%)
Healthy tissues	9 (53)	8 (47)
Flabby ridge - maxilla	3 (18)	14 (82)
Flabby ridge - mandible	2 (12)	15 (88)
Denture stomatitis	2 (12)	15 (88)
Irritative hyperplasia	1 (6)	16 (94)

Figure 1 shows the type of treatment needed by the sample group. Majority (33%) of the elderly needed prophylaxis and scaling, followed by extraction (29%) of decayed teeth or root stumps. Other treatments needed are prosthesis (20%), restoration (13%), and removal of oral pathology (5%).

Figure 1 - Dental treatment needed by residents

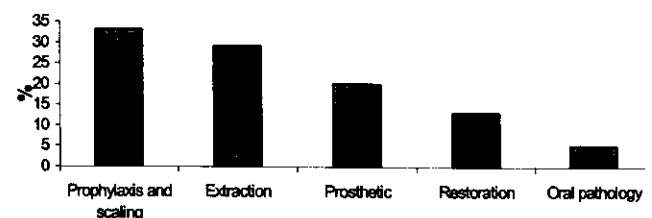


Table 9 - Responses to questionnaire about oral hygiene

	# of individuals	%	
Oral Hygiene practice	Tooth-brushing	42	50
	Mouth rinse	-	-
	Mouthrinse and tooth-brush	-	-
	Tooth-brush and dental floss	-	-
	Nothing	32	38
	Without answers	10	12
Last dental visit	Last year	6	7
	Two years ago	3	4
	Do not usually go/does not remember	27	32
	No answer	48	57

Table 9 shows oral hygiene practices performed by elderly; 50% used a toothbrush only. About 38 % do not practice any oral hygiene. Majority of the individuals (89%) did not remember or did not answer the question of their last dental visit. A dental visit was indicated only when pain was unbearable.

Discussion

Age distribution in many countries is shifting towards an aging population. The Old People's Home, Home of Compassion and Father Law Home are 3 institutions caring for the older members of the population in the Suva area. Main reasons for being institutionalized were primarily being rejected by family members (41) or having some form of disability (18). Disengagement theories tries to explain the decrease in social interaction in elderly persons; while the activity theory support the idea that it is important for elderly persons to be engaged in activities as it brought satisfaction and contentment. We can say that the culture of caring and supporting for family that the Pacific people are known for could be phasing out as evident in the reasons given. Results of these interviews also found that once the residents were accepted into these institutions, no financial assistance was received. Therefore, there was total reliance on the institutions to provide for their daily living.

Generally there were more females than males living in institutions as reported in this study (54% vs 46%) and a Canadian study (71% vs 29%)¹⁶. Furthermore, statistics showed more Indo-Fijians (35) than ethnic Fijians (26), but this difference may not be too significant. In the present survey 87% of the elderly had some form of sickness and disability. Adaptation and functional consequences theories explains that as one ages the adaptative mechanisms slow down for example a decrease in the number of receptor sites important to sugar metabolism, alterations in vision, hearing, etc are to be expected. Neurological disorders, cardiovascular disease and diabetes were the main medical problems. Control of the medical condition would assist the delivery of dental treatment. It was common for older people to take xerostomic drugs; the effects of these include increased susceptibility to dental caries and problems with denture wearing.

Dental Caries and Periodontal Disease

Fifty percent of individuals over the age of 65 years were partially dentate. Comparable to other surveys, only 19%

of the individuals who are 70 years of age and over were partially dentate.^{13, 17} Average DMFT from this group was 23.6 comparable to the Canadian study¹⁶ with a DMFT of 22.6. The dental caries experience of the sample as indicated by the missing component was high. Untreated root caries was greater in number to the teeth being restored, signifying the degree of neglect of oral health services to these individuals. Diagnosis of root caries in epidemiological surveys was difficult, when oral hygiene was poor.¹⁷ In this survey no prophylaxis was undertaken prior to the examination, so under reporting was likely. Many residents had missing teeth and it continued to increase as indicated by the 29% whose root stumps were to be extracted.

Periodontal disease was rampant in this target group with the presence of calculus (40%) and shallow pockets (25%). The Canadian study¹⁶ exhibited a more severe form of periodontal disease with 48% of shallow pockets and 43% with deep pockets. Only 4 subjects (9%) had a healthy periodontium. Treatment of choice was scaling and prophylaxis, for advanced periodontal disease was not a serious problem, therefore dental hygienists could deliver these treatments.

Restoration of the masticatory function through fabrication of dentures was pertinent and crucial. Findings of these survey indicated that 63% of the completely edentulous and 95% of the partially edentulous residents do not have dentures. The rate of edentulousness in this study was lower when compared with studies in Canada¹⁶ (71%). Ridges showed to be healthy for denture-fabrication. Responsibilities now fall with the caregivers to supply the necessary diet for this compromised situation and dental personnel to fabricate dentures. Dentures can be made through the combined efforts of the Suva dental clinic and the administration of the institutions. Education on good denture hygiene was recommended because of the calculus found on them. Brill et al in 1960¹⁸ argued the provision of dentures to the elderly patients is complicated because learning ability and adaptability are reduced.

Mucosal Health

Forty percent of the sample reported some form of mucosal lesions and this was comparable to reports by Thomson et al in 1992.¹³ It was however felt that this percent could be higher due to the lack of standardization of methods for diagnosing and recording mucosal lesions. Diagnosis of mucosal lesions in clinical practice differs

from those used in epidemiological studies, where expensive diagnostic aids such as biopsy and laboratory culture are used. Given the parameters of epidemiological studies, however, it is an acceptable concession¹⁹. No lesions that appeared malignant were discovered in the sample, suggesting that malignant lesions in institutionalized elderly people were not likely to be a substantial problem, but the possibility of their presence should not be overlooked in individuals. Leukoplakia was recorded highest in this study with 13% of the individuals who have oral pathology. In a similar study in Canada,¹⁸ there were no cases of leukoplakia but 21% of the individuals had denture stomatitis.

Oral Hygiene Practices

Many residents just neglected their oral health as suggested by the 50% who did not answer this question and those who said "nothing"; the remaining 50% used a toothbrush. Furthermore, about 89% never visited a dentist nor visited by a dentist. It is clear from these findings that institutionalized residents depend on caregivers' assistance with all aspects of personal hygiene care. Practical training for caregivers is recommended as a way of improving oral health care.^{20, 21} It was also noted that residents who may have severe cognitive impairment tend to resist assistance to personal care hence achieving standards of oral health care were likely to be lower.²²

Development of supportive environment

- Dental care for the elderly must be integrated within the holistic approach to health care; a common risk factor approach is a rational basis for promoting oral health. Diet, smoking, stress, hygiene, trauma, etc are common causes of oral diseases and to a number of chronic diseases such as heart diseases, diabetes, strokes, cancer, etc; health promotion activities targeting these risk factors results in the general well-being of the individual.
- Dental health services should formulate a strategic direction and framework for action that include the older members of our society as about 2.9% of the population were elderly in 1996; with improved medicine, people are living longer and this age group is predicted to increase.
- Guidelines for action should try and achieve the WHO goals for 2000 and that is to reduce edentulousness by 25% for the age 65 years and over

Facilitation of adequate and appropriate access

- Regular screening by dental personnel to monitor oral diseases for elderly people in institutions and community meeting places

- Restoration of root caries, scaling and root planning of teeth in the attempt to conserve teeth

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- Fabrication of dentures to replace missing teeth and restore masticatory functions of the individuals

Community education and skill development

- Training of caregivers for personal and oral hygiene of residents
- Education for dental personnel on geriatric dental care
- Strengthen and support programs by National Oral Health Promotion to include geriatric dental care

Workforce development

- Training of dental hygienists and dental technologists could help with the treatment of oral diseases in this target group

Conclusion

Institutionalized older people in the Suva district had poor oral health and remain to be a neglected member of our society. This study found that they;

- were institutionalized because family members could not care for them
- did not receive any form of financial assistance and therefore totally relied on the institution
- generally had medical problems such as neurological disorders, cardiovascular disease and diabetes
- generally had poor oral health status such as
 - root stumps need to be removed
 - many missing teeth
 - calculus and shallow pockets were common and need treatment
 - oral hygiene practices were poor
 - high demand for dentures/or the dentures were not clean
 - some cases of leukoplakia found
 - there was an urgent need for the dental profession to deliver dental care

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