



Oral Health Status and Treatment Needs of Srilankan Refugees Residing in Gummidipoondi, India

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ABSTRACT:

Introduction: Several studies have indicated that refugees should be regarded as groups “at risk” to oral health. It must be assumed that the high prevalence of dental disease and neglected oral hygiene can also be the result of low priorities of oral health care compared to the more immediate problems of resettlement. Cultural isolation, lack of communication, cultural rejection, and language difficulties also prevent the refugees from getting access to oral health care. Hence, the present study was undertaken to assess the oral health status and treatment needs of the Srilankan refugees residing in Gummidipoondi, Tamil Nadu, India.

Objectives: To assess the oral health status and treatment needs of Srilankan refugees residing in Gummidipoondi.

Methods: A cross-sectional study was performed to determine the oral health status and treatment needs among Srilankan refugees. In order to assess the oral health status and treatment needs, the clinical assessment of dental fluorosis, community periodontal index, loss of attachment, dentition status and treatment need, prosthetic status and prosthetic need was recorded based on a modified World Health Organization 1997 proforma.

Statistical Analysis Used: Multi-group analysis was done using analysis of variance. $P < 0.05$ was considered statistically significant.

Results: Of the 1200 subjects, 28 (2.3%) of the study participants had dental fluorosis. In terms of periodontal status, only 7% had healthy periodontium and 42% had pockets. The mean number of sextants with deep pockets increased with increase in age and was found to be more in males (1.57) as compared to females (0.97). The mean DMFT was high among 55-64 years (13.7) and least among 15-24 years (2.7). 44.7% of the subjects required upper partial denture and 78.7% of the subjects required lower partial denture and 1.6% require complete dentures.

Conclusions: There is marked variability in the distribution of the oral diseases, especially dental caries, periodontal diseases, edentulism among the study population and the need for health education and dental care is vital.

1. Introduction

The desire to escape from poverty, religious or political oppression and attraction for the greater opportunities has uprooted millions of people. The presence of migrants culturally different from inhabitants of the host country is now a widespread phenomenon. The figures from the United Nations High Commission for Refugees indicate that the number of refugees is more than 17 million – most of them are in Asia⁵. South Asia is home to 2 million refugees. It has seen some of the largest refugee flows in history and several countries

here have a record of being hosts to large refugee populations over prolonged periods.

According to the 1951 Convention Relating to the Status of Refugees, a refugee is a person who flees to a foreign country or power to escape danger or persecution for reasons of race, religion, nationality, membership of a particular social group, or political opinion, is outside the country of their nationality, and is unable to or, owing to such fear, is unwilling to avail him/herself of the protection of that country⁹.



The civil war in Srilanka has constantly ejected refugees into India since 1983 riots. Nearly 73,613 Sri Lankan refugees are now residing in 113 camps in Tamil Nadu¹⁰. These camps are located in 25 districts in the state of Tamil Nadu. Some are large camps accommodating more than 1000 families. Districts of Tiruvallur, Vellore, Tiruvannamalai, Erode, Madurai and Shivaganga accommodate 3,500 or more persons. Gummidipoondi is one such Srilankan refugee camp in Tiruvallur district of Tamilnadu.

People crossing national and cultural frontiers often come from populations with disease patterns, health behaviours and health care different from those at their destination. The large size of migrant populations has made migration medicine an issue of major proportion and as migration also has important oral health implications, cultural differences must be considered in the oral health care of refugees and immigrants. The stress of the migration itself can lead to depression and lack of self-confidence. These symptoms are factors which influence the adaption to the host societies, including the use of health services.

2. Objectives

Several studies have indicated that refugees should be regarded as groups “at risk” to oral health⁵. It must be assumed that the high prevalence of dental disease and neglected oral hygiene can also be the result of low priorities of oral health care compared to the more immediate problems of resettlement. Cultural isolation, lack of communication, cultural rejection, and language difficulties also prevent the refugees from getting access to oral health care. Hence, the present study was undertaken to assess the oral health status and treatment needs of the Srilankan refugees residing in Gummidipoondi, Tamil Nadu, India.

3. Methods

An epidemiological survey was conducted at camp of Srilankan refugees residing in Gummidipoondi. A pilot study was conducted for a period of two weeks for sample size estimation, planning of the main study and also to finalize the survey proforma. Therefore, those refugees present on the day and parents of the participants under 18 years, gave verbal consent were included. The nature and purpose of the study was explained to the authorities and refugees, prior

permission was obtained from the Institutional Review Board, Rehabilitation center, administrative office in Chennai and the Taluk office of Gummidipoondi.

The government of Tamil Nadu ran 117 refugee camps in 25 districts catering to about 74,110 refugees. Two stage sampling methodology was used. In the first stage, using simple random sampling, the district was selected. Tiruvallur was the selected one. Tiruvallur district had two camp sites Ambatur and Gummidipoondi. In the second stage, the camp site was randomly selected from the Tiruvallur district. The selected camp site was Gummidipoondi with 4000 refugees. The camp site has three schools. Targeting these schools as investigation site, examination was carried out.

A total of 1200 participants were selected randomly and acquired particulars regarding their demographic details (Age, Gender) following clinical oral examination, the oral health status and treatment needs were assessed using the standard form of modified WHO proforma (1997)⁸.

4. Results

Statistical Analysis

Using either Student’s Independent t-test or One-Way ANOVA followed by Tukey – HSD procedure, compared mean values. Using Pearson’s Chi-square test or Chi-square test with Yates’ Continuity correction compared comparison of proportion of various characteristics or Fisher’s exact test. In the present study, $p < 0.05$ was considered as the level of significance.

Results

The demographic distribution of the study population according to age and gender are shown in (Table 1).

Table 1: Distribution of the Study Population Based on Age and Gender

Age	Gender		Total
	Males n (%)	Females n (%)	
< 5 Yrs	6 (0.5%)	4(0.3%)	10 (0.8%)
5-14 Yrs	267	212	479



	(22.25%)	(17.6%)	(39.9%)
15-24 Yrs	94 (7.8%)	61 (5.08%)	155 (12.9%)
25-34 Yrs	102 (8.5%)	120 (10%)	222 (18.5%)
35-44 Yrs	78 (6.5%)	83 (6.9%)	161 (13.4%)
45-54 Yrs	51 (4.25%)	48 (4%)	99 (8.3%)
55-64 Yrs	30 (2.5%)	28 (2.4%)	58 (4.8%)
≥ 65 Yrs	8 (0.6%)	8 (0.6%)	16 (1.3%)
Total	636 (53%)	564 (47%)	1200 (100%)

Among the 1200 study subjects examined, dental fluorosis was seen in only (28) 2.3% of population. Among the 691 dentate subjects examined, the distribution of the population based on periodontal health status (CPI and LOA) is shown in (Table 2).

Table 2: Frequency distribution of study population based on periodontal health status

Variable		n %
CPI	Score 0	49 (7%)
	Score 1	41 (5.9%)
	Score 2	308 (43.5%)
	Score 3	224 (32.4%)
	Score 4	69 (10%)
LOA	Score 0	371 (53.7%)
	Score 1	131 (18.9%)
	Score 2	88 (12.8%)
	Score 3	36 (5.2%)
	Score 4	65 (9.4%)

In terms of periodontal status, the mean number of sextants with code 0 (healthy) was highest in age group 15-24 years being 2.05 and 5.76 for CPI and LOA, respectively. The mean number of sextants with code 1, code 2, code 3, code 4 for CPI and LOA was highest in age group 35-44 years 4.37 and 1.66; 3.65 and 2.67;

1.66 and 2.2 and 0.80 and 2.3 respectively. Mean number of sextants with code x (excluded) was highest in age groups 55-64 years being 2.47. The mean number of healthy sextants decreases with increase in age group and mean number of sextants with deep pockets increased with increase in age.

The mean number of sextants for CPI with code 0 was found to be more in males being 1.57 as compared to females being 0.97 and it was found to be statistically highly significant ($p < 0.001$). On the other hand, code 1 and code 2 was found to be more in females compared to males and it was found to be statistically very highly significant ($p < 0.001$). However, with regard to LOA, the mean number of sextants with code 4 was higher in females being 0.21 compared to males being 0.09 and was found to be statistically significant. (Table 3).

Table 3: Mean number of sextants affected per person by different periodontal conditions based on age groups and gender

	VARIA BLE	AGE GROUPS						GENDER	
		15- 24	25 - 34	35 - 44	45 - 54	55 - 64	≥ 65	Mal es	Fema les
C P I	Code 0	2.0 5	1. 38	1. 15	0. 58	0. 43	0	1.57 *	0.97
	Code 1	3.7 2	4. 36	4. 37	4. 2	3. 59	3. 33	3.89 *	4.39
	Code 2	2.1 3	2. 7	3. 48	3. 65	2. 98	3. 33	2.57 *	3.10
	Code 3	0.1 1	0. 44	1. 14	1. 33	1. 66	1. 00	0.74	0.75
	Code 4	0.0 1*	0. 02	0. 16	0. 14	0. 78	0. 80	0.1	0.1
	Exclude d	0.0 8	0. 15	0. 50	1. 02	2. 47	2. 30	0.08	0.6
	Code 0	5.6 7	5. 09	3. 56	2. 4	1. 52	0. 22	4.23	4.17
L O A	Code 1	0.0 1	0. 57	1. 66	2. 5	2. 5	3. 1	1.17	1.15
	Code 2	0.0 2	0. 15	0. 66	1. 32	1. 73	2. 67	0.50	0.59
	Code 3	0.0 1	0. 66	0. 27	0. 64	1. 14	2. 2	0.23	0.33
	Code 4	0	0.	0.	0.	0.	2.	0.09	0.21



		03	14	37	36	2	*	
Excluded	0.08	0.11	0.43	1.01	2.69	4.13	0.63	0.60

*p<0.001 (highly significant)

Among the 1190 study population examined, dental caries was present in 740(62.1%) subjects. Across all the age groups, males had more caries compared to females, which was found to be statistically not significant. On the other hand, in the age groups 25-34 years and 55-64 years more number of females (46%) had caries compared to males (34%) and was found to be statistically significant (p=0.03 and p=0.04). (Table 4).

Table 4: Distribution of study population according to dental caries based on Age and Gender

Age	Total No. of Subjects (n)	DC Present		p-value
		Males	Females	
5-14	479	108(22.5%)	96(20%)	0.4
15-24	155	70 (45%)	51(32.9%)	0.25
25-34	222	74 (34%)	102 (46%)	0.03*
35-44	161	69 (43%)	66 (41%)	0.18
45-54	99	31 (31%)	36 (33%)	0.20
55-64	58	9 (15.5)	17 (29)	0.04*
≥ 65	16	5 (31.2)	6 (37.5)	1.00
Total	1190	366 (32.51)	740 (62.1)	

*p<0.001 (highly significant)

The overall mean DFT in primary dentition is 0.55 and permanent dentition (DMFT) is 6.58. The mean number of affected per person for decayed teeth was highest among 45-54 years - 4.31; filled teeth among 35-44 years - 0.22 and missing teeth in >65 years - 8.75 respectively.

Based on the treatment needs, 555 (46.5%) required one surface filling, 385 (32.3%) require 2 or more surface fillings, 483 (40.5%) required extractions and 88 (0.07%) required root canal treatment. Among the study subjects, requirement for 1 surface filling was highest among 25-34 & 35-44 years age groups. Requirement

for 2 or more surface fillings was highest among 15-24 years age group. The requirement for extraction was highest among 65 years & above age group and requirement for root canal treatment was highest among 15-24 years age group. On gender comparison, one surface filling and two or more surface fillings required was slightly higher among males 47.6% and 32.8% as compared to females 45.5% and 31.75% (p = 0.53). While subjects in need of extractions was higher among females 269 (48%) compared to males 214 (33.9%) and was found to be statistically highly significant (p < 0.01). (Table 5)

Table 5: Distribution of study population according to treatment needs based on Age groups and Gender

Variables	Age groups n(%)							Total	Gender n(%)		
	5-14	15-24	25-34	35-44	45-54	55-64	≥ 65		Males	Females	p-value
1 surface filling	23 (8%)	69 (44%)	11 (5%)	85 (52%)	24 (24%)	15 (2%)	7 (6%)	555 (47%)	30 (0%)	255 (46%)	0.53
≥ 2 surface filling	12 (2%)	37 (24%)	87 (39%)	73 (45%)	48 (48%)	19 (2%)	1 (1%)	385 (32%)	20 (33%)	178 (32%)	0.53
Extraction	12 (2%)	41 (26%)	86 (39%)	82 (51%)	10 (21%)	33 (5%)	11 (9%)	483 (41%)	21 (34%)	269 (48%)	0.09*
RCT	11 (2%)	25 (16%)	27 (12%)	18 (11%)	6 (6%)	1 (2%)	0 (0%)	88 (7%)	44 (73%)	44 (8%)	0.67
Total	47 (9%)	15 (10%)	22 (10%)	16 (10%)	99 (83%)	58 (5%)	16 (1%)	119 (10%)	63 (10%)	560 (47%)	

*p<0.001 (highly significant)

Among the 711 study subjects examined, 318 (44.7%) subjects required upper partial denture and 382 (78.7%) required lower partial denture. Among the study subjects, partial dentures required was highest among 55-64 years age group and was least among 15-24 years age group. When the percentage of subjects requiring partial denture was compared with age and gender, the association was found to be statistically not significant (p=0.92). (Table 6)

Variables	Age groups n(%)						p-value	Gender n(%)		
	15-24	25-34	35-44	45-54	55-64	≥ 65		Males	Females	p-value
Upper	17 (11)	62 (28)	99 (62)	77 (78)	51 (88)	12 (75)	0.92	16 (35)	155 (45)	0.03*



Need	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
Lower Need	29 (19 %)	11 4 (51 %)	49 (30 %)	25 (25 %)	44 (76 %)	11 (79 %)	17 4 (38 %)	142 (41 %)
Total	15 5	22 2	16 1	99	58	16	46 3	348

* $p < 0.001$ (highly significant)

5. Discussion

Online searches show very limited scientific literature on the oral health status of refugees. So, this study was the first of its kind to assess the oral health status of Sri Lankan refugees in Gummidipoondi camp. The studies done on oral health status of refugees are scarce; efforts have been made to compare with available supporting data. Among the 1200 refugees examined, it was noted that children < 15 years are more compared to other age groups. This difference was seen because adults were reluctant for screening. Some of the main reasons given for refusing to participate were that people felt too frail, unwell or too old to participate. Details of reason for refusal were not fully quantified whereas it was made compulsory for all school going children.

Among the total study population dental fluorosis was observed in 2.3% subjects this may be due to high intake of fluoride in drinking water because they belong to districts of Chatikulam and Vavuniya which are considered to be high fluoride belts.

The result of the present study indicates that the very small proportions of individuals were found to be healthy (7%) and severe periodontal destruction was observed in elder age groups (42.4%) with respect to periodontal conditions. In accordance, a study conducted by Durward et al² in 1989 demonstrated general increase in periodontal disease with age. In accounting for poorer periodontal health of refugees, there is general lack of professional dental care, regular oral hygiene practice are not widely practiced, and toothbrushes are in short supply, asymptomatic preventive visits to dentist are uncommon, during hardship of war, flight, and life in refugees' camp oral hygiene would not be the priority. Variation in periodontal conditions was observed. Among 35-44 years more males are affected compared to females. Several studies have reported a higher prevalence of

deep pockets in males than in females⁷. It has been suggested that the reason for gender related differences in the clinical manifestation of periodontal destruction are often related to better oral hygiene among females.

In the present study, the prevalence of dental caries in primary dentition was 55.4%. In a study conducted by Susan Cote et al⁶ refugee children 51.3% caries experience. Similarly, according to studies done by Ekman. A et al³ 89% and Watson et al⁶ 47% of refugee children were affected with dental caries respectively. This more likely explanation for the differences in caries prevalence could be due to the variation in diet, access to professional care, cultural beliefs and practices. In particular the refined sugars were the most important dietary factor which led to development of dental caries. The relationship between dental caries and refined sugar consumption has been well documented.

In the present study, the mean DMFT score was highest in age group of 65 years and above (13.73) and lowest in the age group of 15-24 years (2.76). Increased development in dental caries is due to exposure to a different diet. The results in the present study were similar to study conducted by Davidson N et al¹ in which DMFT score for former Yugoslavians and Kosovans was 12.6 and Iraqi refugees had 3.3. The high number of untreated decayed teeth supports the assertion that refugees have poor dental care prior to arrival in a new country and seek services only when there is a serious oral health problem. It also indicates of difficulty in accessing dental services following resettlement and that dental care is frequently not seen as a high priority during migration process. Cost, cultural isolation, communication barriers and alternative beliefs about dental care must have increased DMFT score.

In the present study, percentage of extractions required increased with increase in age group. This could be due to increase in supragingival and subgingival calculus associated with large amounts of plaque. Thus increase in loss of attachment and mobility. Secondly, since no immediate dental treatment was undertaken this could have led to increase in caries lesions or exacerbating already existing caries lesions, resulting in extraction as the only mode of treatment. Also, the percentage of extraction was high among females as observed in this



study. Because of the harsh camp life, the loss of husbands and elderly male members in the war, these women tend to act as the heads of their households. Some of them do all the household chores, look after the children and also go out to earn extra money. They tend to neglect their health including oral health and going for dental services as a last resort when it effects their daily routine life badly, which often needs extraction. The stress of migration can lead to depression. Cross-cultural communication is especially difficult for women, which can lead to lack of self-confidence. These factors influence the use of health services, which include oral health also.

There was increase in percentage of root canal treatment as a treatment need in age group of 15-24 years. This indicates that there were deep carious lesions in younger age group, teenagers could be due to change in dietary habits adopt this. These results were in accordance with the study done by Scheutz et al⁴.

In the present study the percentage for requirement of upper denture was 44.7% and of lower denture was 38.2% which was similar to a study by Scheutz et al⁴ and Ekman et al³. This suggests that refugees have poor dental care access and seek services only when there is a serious oral health problem. Other reasons could be the high cost of the treatment and amount of time taken for the treatment. Therefore, the refugees tend to accept edentulism as part of life.

Conclusion

There was a marked variability in the distribution of the oral diseases, especially dental caries, periodontal diseases, edentulism in refugees residing in Gummidipoondi and the need for health education and dental care was more among them. Oral diseases can have a significant impact on both the social and psychological aspects of an individual's life. Substantial dental health problems are noted in the lower social class. Hence, policy makers should focus on improving the oral health status of this underprivileged group and following few recommendations as: firstly, primary care physicians and health workers can play a crucial role in educating newly arrived refugees about personal oral hygiene practices and insist on practicing them. Increase the availability of preventive oral health services for the initiation of care. Secondly, health education, community outreach efforts and counseling

refugees about nutrition, refining their dietary patterns and enhancing various preventive self-care health behaviors.

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