Oral health status and treatment needs among Tanzanians of different age groups

Mosha HJ[1], Senkoro AR[1], Masalu JRP[2], Kahabuka F[2], Mandari G[2], Mabelya L[2] and Kalyanyama B[2].
[1]Central Oral Health Unit, Ministry of Health (MoH), [2]School of Dentistry, Muhimbili University College of Health Sciences (MUCHS)

Abstract

A national oral health survey is a collection of standardized information on oral health from a specific national population or some sample. Basic oral health surveys are used to collect information about the oral health status and treatment needs of a population and subsequently to monitor changes in levels and patterns of disease. In this way it is possible to assess the appropriateness and effectiveness of the services being provided and to plan or modify oral health services and training programs as needed (WHO 1997).

In Tanzania, the first national oral health survey was conducted in 1982 and the Tanzanian economy remained stagnant at low level for nearly two decades (mid 1970's to mid 1990's). However, as of late, some signs of economic recovery are evident. These might have an impact on the current pattern of oral diseases, particularly dental caries. In this regard, a need to conduct the second national oral health survey (2004) in order to monitor oral health changes arised. The purpose of the study was to determine the oral health status and treatment needs among Tanzanians of different age groups.

The findings of the study indicate that Dental caries experience is still very low among Tanzanians (mean DMFT for 12 year olds was 0.3 and for the whole population 1.8). This is in agreement with reported low frequency of sugar consumption where only 4.4% of the studied population reported to have a frequency of sugar consumption of five or more times per day. Majority of the studied population (76%) had proper knowledge on causes of dental caries being frequent consumption of sugary food stuffs and a substantial percentage (67%) agree that dental caries can be prevented by controlling frequency of sugar consumption or by use of fluoridated toothpaste.

Calculus of varying severity (48%), low level of bleeding and a few pockets were identified. Although majority of the subjects (68%) responded that they brush more than two times a day, a high level of calculus was found, which raise doubts on effectiveness of tooth brushing methods used. Calculus was noted to be increasing with age and was predominant among 35-44 years olds.

Generally there is low level of knowledge on oro-facial lesions coupled with ignorance on the treatment, and belief in witchcraft. Tobacco and its products are still being used by the subjects that could indicate lack of knowledge on the causes of oro-facial lesions.

Overjet and openbite were very low and very few subjects needed orthodontic corrections. A very small percentage of the population studied (0.1% – 1.2%) had various TMJ disorders, and all disorders were recorded in 35+ year olds. The studied population demonstrated a proper knowledge on possibility of treating a fractured tooth or jaw. While the majority of the subjects believed in the existence of nylon teeth but the majority had not taken their children for extraction of nylon teeth.

Dental fluorosis is common among both sexes and affects more than 30% of the population. All age groups are affected equally. The condition is more prevalent in Kilimanjaro and Shinyanga regions.

There are very few prosthetic appliances among the population signifying that the services are not available, therefore there is low awareness on the availability of the services or purchasing power of the subjects is low despite a prosthetic treatment need of 11%.

The finding that 6.5% of the studied population was found to need immediate oral health care implies that there is a need to have oral health care providers to lower levels to take care of such requirements. Nearly half of the studied population (48%) needed referral to a nearby dental clinic. If all those will decide to attend dental clinics an increased of dental personnel will be required to offer oral health services.

Correspondence: Mosha HJ, P.O. Box 40384, Dar es Salaam, Tanzania. E-mail moshah@yahoo.com

Introduction

Oral health status is the condition of oral structures detectable by a dentist using standard methods of measurements (Young and Striffler 1969). The oral health status is used to measure oral health needs which describe states of the client that create a requirement for care and therefore represents a potential for service (Pine 1997). Many factors affect oral health status including, knowledge, attitude, behaviour, social economic status, demographic variables and availability of health services (Dunning 1980). Where as, needs are measured and described by clinicians using clinical indicators, demands are expressed by the clients basing on their perceptions. When clients express their demand by seeking care at health facilities, they have utilized health service.

National oral health survey is a collection of standardized information on oral health from a specific national population or some sample. Basic oral health surveys are used to collect information about the oral health status and treatment needs of a population and subsequently to monitor changes in levels and patterns of disease. In this way it is possible to assess the appropriateness and effectiveness of the services being provided and to plan or modify oral health services and training programs as needed (WHO 1997).

World Health Organization (WHO) recommends that each country performs oral health surveys, possibly using pathfinder methodology for planning and for comparative purposes. Consequently, various national oral health surveys have been done in Africa; Zimbabwe (1995), Swaziland (Marthalar et al. 1994), Madagascar (Petersen et al.1996) and Zanzibar (Petersen et al.1998).

In Tanzania, the first national oral health survey was conducted in 1982 (Muya et al 1984). In that survey it was revealed that 35-40% of the population had no clinical caries. The majority of those found with caries they had 5 or less decayed surfaces. The majority of carious lesions were occlusal and proximal lesions. In molars in particular occlusal lesions predominated and the second permanent molar was the most involved followed by the first. Regarding periodontal conditions, most of the tooth surfaces were covered with plaque. The average percentage of surfaces bleeding on probing was 35% – 40%. Furthermore, it was reported that irrespective of poor oral hygiene and extensive gingivitis only a slow progression of periodontal breakdown was found.

In 1994, a baseline oral health survey was conducted in Tanga and Mbeya (Mosha et al. 1994). The findings of this survey indicated that 75% of 5-6 year olds were caries free. The DMFT for 12 year olds was less than 0.4. The DMFT for 18 years ranged from 0.7-1.3, for age group 35-44 it ranged from 1.8-2.8 and for 55^{+} it was 5.1-5.2. In respect of periodontal conditions, about half of the sextants at the age of 12 years were not affected by any periodontal conditions. From 18 years and above, the mean number of sextants with calculus was higher than of any other periodontal condition.

The largest proportion of the population showed simple treatment needs (one surface fillings and extractions) although extraction of three or more teeth was indicated among the 55^{+}. Besides the national oral health survey and the baseline survey, other studies done in Tanzania report that there is no evidence in increase of caries experience (Frencken 1987, Mosha et al.1992). This was supported by findings of another study (Rugarabamu et al. 2002) which reported that caries progression among Tanzanian children is very low. Regarding periodontal health, it has been reported that periodontal conditions among Tanzanians rarely progress to pocket formation and hence few teeth are lost due to periodontitis (Baelum et al.1986, Lembariti 1988, Mumghamba 1990).

Oral health is behaviour mediated. For instance, dental caries experience is affected by frequent sugar consumption. On the other hand, sugar consumption is related to availability as well as purchasing power. Periodontal health is influenced by proper tooth brushing which is related to the self esteem which is largely dependent on social economic status. Other conditions like dental trauma are also associated with social environment including games and recreation.

The Tanzanian economy remained stagnant at low level for nearly two decades (mid 1970's to mid 1990's). However, as of late, some signs of economic recovery are evident. These might have an impact on the current pattern of oral diseases, particularly dental caries. Therefore there was a need to conduct a national oral health survey in order to monitor oral health changes.

The purpose of the study was to determine the oral health status and treatment needs among Tanzanians of different age groups.

Subjects

The Country was divided into five geographical zones (Northern, Southern, Central, Lake and Southern Highlands). This was in accordance with the WHO recommendation for the National Oral Health survey 1997. From each zone one region was randomly selected namely Dodoma, Shinyanga, Iringa, Kilimanjaro and Lindi. For Kilimanjaro and Shinyanga regions, the subjects were sampled from urban sites and for each region two sites were purposefully sampled. Where from Lindi and Iringa regions, two rural sites were purposely sampled. Dodoma being Metropolitan four urban sites were sampled.

The study population was grouped into five age strata namely 4-6, 12, 18, 35-44 and 55+ years as recommended by WHO 1997. From each index group 25 subjects were randomly selected in each of the study sites making a total of sampled size of 1,500 subjects for the study. It was planned to examine a Sample size of 1,500 Subjects. However the sample size was not reached during data collection because of unforeseen circumstances. Therefore a total of 1,063 subjects were conveniently included from five geographic locations of whom 562 were males and 501were females. Of the examined subjects, 305 were aged 4-6 years old, 197 were aged 12 years and 561 were aged 18+ years. Six hundred forty five were residing in the urban setting and 421 in the rural setting (Table 1).

Table 1: Sample distribution according to age groups, sex and location type

Age group (years)	Male	Female	Urban	Rural
4-6	163	142	203	102
12	93	104	100	97
18	146	108	154	99
35 – 44	84	101	107	78
55+	76	46	77	45
Total	562	501	642	421

Two hundred thirty six subjects were from Shinyanga, 168 from Dodoma, 242 from Kilimanjaro, 182 from Iringa and 238 from Lindi (Table 2).

A total of 55 subjects did not record their level of education, 609 had not completed primary education, 211 completed primary education, 168 completed secondary school education and 20 completed college education (Table 3).

Methodology

Data collection was done by means of structured questionnaire (interview or self administered) and clinical examination. Among 18 year olds and some of 35–44 year olds the questionnaire was self-administered, while for the most of 35-44 year olds and 55+ year olds were interviewed by the examiners. Close-ended questions: dichotomized or 3-4 point scale was used to determine knowledge, attitude and practice/behaviour.

Table 2: Distribution of the sample according to age groups and geographic location

Age group (years)	Geographic Location					
	Shinyanga	Dodoma	Kilimanjaro	Iringa	Lindi	Total
4 – 6	51	102	50	53	49	305
12	51	-	50	47	50	198
18	44	66	48	50	48	256
35-44	56	-	51	32	46	185
55+	34	-	43	-	45	122
Total	236	168	242	182	238	1063

Clinical examination was conducted in all age groups in convenient places with the subjects seated in an office chair under natural day light utilizing mouth mirrors and periodontal probes. Examiners wore surgical gloves throughout the examination exercise, changing gloves after each

subject. WHO criteria (1997) as defined or modified was used to score dental caries, periodontal conditions, neoplasm, cysts, malocclusions, prosthetic status, dental fluorosis, oral infections and TMJ disorders. Data was entered in the computer and analyzed for frequencies of the various conditions using SPSS program 10.0. p value of 0.5 was chosen as a level of significance.

Results

Dental caries

The mean DMFT of the examined subjects is 1.8, out of which the Decayed (D) component was 1.1 and the missing (M) component 0.7. The mean DMFT for urban population was 1.4 and that for rural population is 2.3 (Table 4).

Table 3: Distribution of the sample according to level of education

Age group (years)	Level of education				
	Not completed primary education	Completed primary education	Completed secondary education	Collage education	Total
4 – 6	305	0	0	0	305
12	186	0	0	0	186
18	13	75	143	6	237
35-44	43	101	17	12	173
55+	62	35	8	2	107

55 subjects, their level of education was not recorded

This difference was statistically significant (p = 0.0001). The mean decayed component was 1.4 for the rural population and for urban population it was 0.9. This difference was statistically significant (p = 0.001). The mean DMFT for females was 2.0 and for males was 1.6 (Table 5). This difference was not statistically significant. The mean decayed component was 1.3 for females and it was 0.9 for males. This difference was statistically slightly significant (p = 0.29).

Regarding dental caries experience in the five geographical locations, the mean DMFT for Shinyanga was 1.9, Dodoma (0.5), Moshi (1.2), Iringa (0.8) and Lindi (3.3) (Table 6)

For the different five age groups the mean DMFT among 12 year olds was 0.3, 18 year olds was 0.8, 35 – 44 year olds was 2.6 and for 55+ was 3.6 (Table 7).

The mean DMFT among the subjects who had not completed primary education was 2.2. The mean DMFT value among subject who had completed primary, secondary and college education were 1.8, 1.1 and 2.2, respectively (Table 8).

About 74% of 4-6 year olds were caries free while in the older age groups 56% were caries free.

Table 4: DMFT by urban and rural population

Location	D	M	F	DMFT
Urban	0.9	0.5	0	1.4
Rural	1.4	0.9	0	2.3
Total	1.1	0.7	0	1.8

Of the studied population, 77.5% did not need tooth extraction. However 20.2% needed extraction of 1-4 teeth and 2.3% needed extraction of 5 or more teeth. In respect of tooth restoration, 15.7% required one surface restoration of 1-4 teeth and 9.3% required two surface restoration of 1-4 teeth.

About 76% of the studied populations know that dental caries is caused by frequent consumption of sugary foodstuffs. Use of medicinal syrups was reported to cause dental caries by 30.2%. Other reported causes were worms by 85.2%, pregnancy by 24.1% and inheritance by 29.4% of the population. Regarding prevention of dental caries, 67.4% of the studied population agreed that dental caries is prevented by controlling sugar consumption. Of the studied population, 39.2% believe that dental caries is treated by restorative/conservation methods while about

67% agreed that dental caries is prevented by using fluoridated toothpaste. Only 4.4% of the studied population reported to have a sugar consumption frequency of five or more times per day.

Periodontal conditions

Periodontal conditions (CPI) were recorded among 817 subjects aged 18, 35–44 and 55+ years olds. Table 9 shows the distribution of periodontal conditions (CPI) by sextants. Eleven percent of the subjects had bleeding sextants of varying severity; 3.1% had one sextant affected and 2.4% of those with bleeding gums had all sextants affected. Whereas 47.9% of the subjects had calculus of varying severity only 22.5% of those with calculus had all sextants affected. Experience of periodontal pockets amongst the three age groups was very small. Shallow pockets and deep pockets were found in 8.2% and 3.5% of the subjects had shallow pockets (4-5mm) and deep pockets (more than 5 mm) respectively.

Table 5: DMFT by Gender

Gender	D	M	F	DMFT
Female	1.3	0.7	0	2.0
Male	0.9	0.7	0	1.6
Total	1.1	0.7	0	1.8

The mean number of sextants affected with bleeding, calculus, shallow pockets and deep pockets were 0.5, 2.68, 0.3 and 0.1 respectively. Calculus was the most prevalent condition, and more common among the 35-44 year olds with mean score 0.8 (Table 10).

Periodontal treatment needs identified included oral hygiene instructions, scalling, deep scaling and root planning. More males (33%) needed treatment than females (27%). Majority of the subjects needed scalling followed by oral hygiene instructions, deep scaling and root planning (Table 11). The urban population was more affected (33%) than the rural population (26%), also age group 18 year old did not need scalling and root planning.

Regarding knowledge on prevention of gingival bleeding, 69.2% of the respondents agree that gingivitis can be prevented by tooth brushing. Regarding frequency of tooth brushing, 67.7% of the subjects said they brush two times or more per day. As regards causes of periodontal diseases, majority of respondents agreed that bacteria do cause periodontal disease, while 67% and 52% agreed that periodontal conditions are caused by lack of tooth brushing and lack of Vitamins respectively.

Table 6: DMFT by geographical location

Geo. Location	**D**	**M**	**F**	**DMFT**
Shinyanga	1.3	0.6	0	1.9
Dodoma	0.3	0.2	0	0.5
Moshi	0.6	0.6	0	1.2
Iringa	0.6	0.3	0	0.8
Lindi	1.8	1.3	0	3.3

Orol-Facial Lesions

Distribution of Extra and Intra oral-facial lesions among study population of frequency and percentage is shown on table 12. The commonest lesions encountered were extra and intra oral lesions accounting for 0.6% and 0.5% respectively, followed by enlarged lymph nodes of head and neck, abnormalities of upper and lower lips, and leukoplakia each (0.2%). Only a few oral facial lesions were encountered.

On knowledge and practices related to occurrence of neoplasms and cysts, nearly half of the studied population (47%) know that a long standing swelling in the oral region could be a neoplasm or cyst. Moreover, about 32% thought that such a swelling is a normal phenomena and 17% reported that a long standing swelling in the oral region is due to witchcraft. Despite the information on what a long standing swelling could be, 65% of the studied population agree that a long standing swelling in the oral region can be treated in the hospital. Use of snuff tobacco was reported by 5-6%, use of cigarette by 13.3%, use of pipe tobacco by 0.6%, and upper lip mutilation (Ndonya) by 0.9%.

Malocclusion

A large percentage (93.9%) of the studied population had a normal antero posterior molar relationship and an overjet of 0-6 mm (98%). Vertical anterior open bite was observed in about 8% of the population. The studied population had a reasonably good knowledge on causes of malocclusion. About 44% mentioned malalignment, 50% mentioned inheritance, 43% delayed extraction of deciduous teeth as possible causes of malocclusion. Early extraction of deciduous teeth was mentioned by about 16% only.

Dental Fluorosis

The majority of the sample examined had no dental fluorosis 66.2%. About 10% had mild fluorosis while 6.4% had moderate fluorosis and 14.3% had severe fluorosis (Table 13).

Dental fluorosis experience shows that, 41% of the 12 years olds, 27% of the 18 year olds, 36% of the 35-44 years and 32% of the 55+ year olds were affected. In Shinyanga and Kilimanjaro regions, there were more people affected by dental fluorosis than in the other regions (Table 14). As regards distribution by sex, 37% of the males and 30% females were affected by dental fluorosis.

The respondents showed a good knowledge on causes of dental fluorosis. About 60% mentioned drinking water with excessive fluoride and 51% mentioned Trona (Magadi) as possible causes of dental fluorosis. More-ever, about 35% of the subjects mentioned poor tooth brushing as a likely cause of dental fluorosis and 12% were not recorded.

Table 7: DMFT by age groups

Age (years)	D	M	F	DMFT
12	0.3	0	0	0.3
18	0.7	0.1	0	0.8
35-44	1.8	1.1	0	2.9
55	1.6	2.1	0	3.7

Prosthetic need

Of those examined 96.2% had no prosthetic need in either the lower or upper jaw. For those needing prosthesis 3.2% needed partial dentures in both upper and lower jaws. The need for a bridge was very low 0.4%.

TMJ Disorders

Clicking was found in 1.2% of those examined and mostly in the age groups 35-44 year olds and 55+ year olds. Males were more affected than females. Reduced jaw mobility was found in 0.1% of the 55+ year olds and was mostly noted among the females. Temporomandibular joint tenderness was found in 0.7% of the 55+ year olds and mostly among the females.

Table 8: DMFT by Education

Age	D	M	F	DMFT
Not completed primary education	1.2	1.0	0	2.2
Completed primary education	1.1	0.7	0	1.8
Completed secondary education	0.8	0.3	0	1.1
Completed college education	1.6	0.5	0	2.2

Note: only seven fillings were recorded in the whole survey

Oro-facial trauma

A good percentage of the studied population know that a fractured tooth can be treated (62%) and that of fractured jaw can be treated. Sixty five to eighty percent of the studied population know various preventive measures of oro-facial trauma.

Oral manifestations of HIV/AIDS

Majority of the subjects knew that oral ulcers Angular cheilitis (86%) and oral thrush (74%) are oral manifestations of HIV/AIDS. 50% of the subjects knew that Kaposi's sarcoma is associated with HIV/AIDS. Also Majority of the respondents (84%) agree that voluntary counseling and testing of HIV/AIDS is important.

Toothbud extraction
Regarding toothbud extraction 47% of the subjects believe that Nylon teeth exists, with 38% disagreeing, 92% of the respondents had never taken their children for extraction of nylon teeth. The majority of the subjects are aware of the various complications associated with toothbud (Nylon) extraction.

Need for immediate care
Of those examined, 6.5% needed immediate care, while 0.5% had a life threatening conditions and 48% needed referral.

Discussion
Dental caries experience is still very low among Tanzanians (mean DMFT for 12 year olds was 0.3 and for the whole population was 1.8). This is in agreement with reported low frequency of sugar consumption where only 4.4% of the studied population reported to have a frequency of sugar consumption of five or more times per day. Results of this study are slightly lower than those reported in a previous study by Mosha et al. (1994). They are also in contrast to the expectations that improvement in social economical standard of Tanzanians would have been reflected by an increase in mean the DMFT. These observations may be explained by the fact that it may take about 10 years for the effect of social economic improvement to have impact on a higher segment of the population. It also takes about 5 years for the change in dietary habits to manifest on the dental status. Besides, Dar es Salaam which is a metropolitan city that had experienced positive social economical status was not included in the current survey or may be purchasing power has not arranged despite signs of economical growth!

DMFT increased by age from 0.3 for the 12 year olds to 3.6 for the 55 year olds. Increase of DMFT by age is due to increase in exposure period of cariogenic challenges, an observation that have been reported else where (any reference). Dental caries experience in the five geographical locations showed that Lindi has the highest DMFT (3.3) followed by Shinyanga (1.9) and the lowest was reported in Dodoma (0.5) followed by Iringa (0.8). Differences may be contributed by not recording caries experience of old age groups in Dodoma and Iringa, the age groups that have a relatively higher caries experience. No statistical significant differences in caries experience was seen between the two sexes.

Table 9: Distribution of Periodontal conditions (CPI) by sextants

No of sextants	Bleeding %	Calculus..%	Shallow pockets %	Deep pockets %
0	89.0	52.1	91.8	96.5
1	3.1	7.0	2.3	1.6
2	1.1	7.1	1.3	0.7
3	1.5	4.4	0.7	0.4
4	2.1	3.8	2.8	0.6
5	0.9	3.1	0.2	0.0
6	2.4	22.5	0.7	0.2

Slightly higher DMFT was observed in people who had not completed primary education and those who completed college education. This observation can be explained by the fact that most of the people who had not completed primary education and those who had completed college education are likely to be aged above 35 years who have had longer exposure to cariogenic challenges. As was observed earlier by Mosha et al. (1994), 74% of the 4-6 year olds were caries free. This shows that probably there had been no changes in children's dietary habits.

The fact that only 7 fillings were seen in the whole study group implies that virtually no restorative treatment is done. Apparently, the dental profession should strive to change their approach on management of dental caries and to motivate the public to seek conservative treatment in time. The fact that nearly a quarter of the study population (22.5%) need extraction of at least one tooth shows a high requirement of emergency care. Although there were very few fillings reported, 16.3% of the population had at least one tooth requiring one surface filling and 9.5% of the population had at least one tooth requiring two surface filling. This means that if the teeth requiring fillings would be filled, there would be substantial proportion of a filing (F) component in the mean DMFT.

A high percentage of the studied population mentioned frequent consumption of sugary food stuffs (76%) or bacteria (85.2%) as the cause of dental caries. Regarding prevention of dental caries more than half of the studied population (67.4%) agreed that dental caries is prevented by controlling sugar consumption.

Table 10: Mean number of sextants affected with periodontal condition (CPI) by age group

Age Group (years)	Bleeding	Calculus	Shallow pockets	Deep Pockets
18	0.3	0.5	0.0	0.0
35-44	0.1	0.8	0.1	0.0
55+	0.1	0.2	0.2	0.1
All age groups	0.5	0.7	0.3	0.1

This shows that the majority of the population is aware of the causes of dental caries and has proper knowledge on prevention of dental caries. A fact that can be encouraged to maintain low caries experience among Tanzanians.

Majority of the studied population (76%) had proper knowledge on causes of dental caries being frequent consumption of sugary food stuffs. Similarly a substantial percentage (67%) agree that dental caries can be prevented by controlling frequency of sugar consumption or by use of fluoridated toothpaste. Probably oral health education messages addressing the public through various mass media has reached the targeted community. Therefore it is important for the dental professionals to build on the existing knowledge in the efforts of maintaining a low caries experience among Tanzanians.

A very low percentage (4.4%) of the studied population consume sugary foodstuffs five or more times a day. Only 39% of the studied population believe that filling of a decayed tooth is a treatment of dental caries. This observation could be an explanation for the few fillings observed in this study, probably explaining the fact that people visit a dentist when in pain and demand tooth extraction (Ref. No reference yet has been inserted). The dental profession is therefore charged to educate the public on conservative treatment of dental caries.

Table 11: Periodontal treatment needs by age and sex

Age (years)	Sex	OHI	Scalling	Deep Scalling and root planning
18	M	2.0%	10.2%	-
	F	3.8%	4.3%	-
33-44	M	0.7%	8.9%	0.1%
	F	1.6%	8.8%	0.2%
55 +	M	1.5%	8.9%	1.1%
	F	1.3%	7.0%	0.6%

The study revealed that majority of the subjects had good oral hygiene and very few pockets. However, calculus featured more prominently than other conditions, despite low gingival bleeding (21%). It also revealed that people have good knowledge (74%) on the cause of periodontal conditions. Results indicate that (69.2%) of the people know the different methods of preventing periodontal disease. However, calculus of varying severity (48%), low level of bleeding and a few pockets were identified. Also, although majority of the subjects (68%) responded that they brush more than 2 times a day, a high level of calculus was found, which raise doubts on effectiveness of tooth brushing methods used. Calculus was noted to be increasing with age. However, it was predominant among 35-44 years olds. More efforts should be directed to this age group.

Generally there is low level of knowledge on oro-facial lesions coupled with ignorance on the treatment, and belief in witchcraft. Tobacco and its products were still being used by the subjects that could indicate lack of knowledge on the causes of oro-facial lesions. Lack of knowledge and believes in witchcraft could contribute to late attendance by patients to hospital as observed in most hospitals in Tanzania. Results from this study showed a very low prevalence of extra and intraoral oro-facial lesions. Only one tumour (not specified) was reported on one subject. May be the failure fo people having oro-facial lesions to appear for the study could explain the situation.

The results also showed that prevalence of malocclusion, overjet and openbite were very low and very few subjects needed orthodontic corrections. Fourty three to fifty percent of the respondents had knowledge that malalignment, inheritance and delayed extraction of deciduous teeth were causes of malocclusion. However, 84% of the respondents did not know that early extraction of deciduous teeth is also a cause of malocclusion. This indicates a need for oral health education on the causes and prevention of malocclusion.

Table 12: Distribution of oral-facial lesions

Lesions	Frequency (%)
Extra oral ulcerations	0.6
Enlarged lymph nodes (Head and neck)	0.2
Abnormalities of upper and lower lips	0.2
Other intra oral tumours	0.1
Leukoplakia	0.2
Intro oral ulcerations (Aphthous, Herpetic Traumatic)	0.5

Dental fluorosis is common among both sexes and affects more than 30% of the population. All age groups are affected equally. The condition is more prevalent in the Northern (Kilimanjaro) and Western (Shinyanga) Zones. Similar findings have been reported earlier (Muya et al 1984 and Mosha et al. 1994). Despite the high knowledge on etiology of fluorosis, half of the respondents failed to link Trona (Magadi) with etiology of the condition. More efforts should be made to educate the population on the causes of fluorosis with much emphasis on the role of Trona and how to prevent it.

There are very few prosthetic appliances among the population signifying that the services are not available, therefore there is low awareness on the availability of the services or purchasing power of the subjects is low despite a prosthetic treatment need of 11%.

The studied population demonstrated a proper knowledge on possibility of treating a fractured tooth or jaw. They also know various preventive measures against oro-facial injuries. Since studies conducted in some Tanzanian populations reported high prevalence of oro-facial injuries (Kahabuka reported 21% and Moshy reported 25%) it would be of advantage to encourage the public at large to seek treatment immediately after sustaining injuries and to abide to the preventive measures against trauma.

Table 13: Distribution of the subjects affected by Dental fluorosis

Scores	% of subjects affected
Normal	66.2
Questionable	1.1
Very Mild	20.0
Mild	9.9
Moderate	6.4
Severe	14.3

A very small percentage of the population studied (0.1% – 1.2%) had various TMJ disorders, and all disorders were recorded in 35+ year olds. Since TMJ disorders are associated with tear and wear of the joint the disorders were recorded in higher age groups as would be expected. Unfortunately trauma experience that is known to be associated with TMJ disorders was not recorded in this survey and therefore no correlation can be made.

Table14: Distribution of subjects affected by Dental fluorosis according to geographic location

Location	% of subjects affected
Shinyanga	70.0
Dodoma	28.0
Kilimanjaro	47.0
Iringa	1.0
Lindi	5.0

The study results revealed that majority of the subjects believed in the existence of nylon teeth and did not know the complications associated with extraction of tooth bud. Despite the low knowledge, majority had not taken their children for extraction of nylon teeth. Therefore, emphasis should be put on health education regarding non-existence of nylon teeth.

The finding that 6.5% of the studied population was found to need immediate oral health care implies that there is a need to have oral health care providers to lower levels to take care of such requirements. Although a small percentage of subjects (0.5%) had life threatening conditions, the public should be informed on various life threatening conditions that can be found in the oral region and be advised to seek oral health care in an event of such conditions.

Nearly half of the studied population (48%) needed referral to a nearby dental clinic. If all those will decide to attend dental clinics a big number of dental personnel will be required to offer oral health services.

References

1. Young and Striffler. The dentist, his practice, and his community. W.B. Saunders Company 2nd Edition 1969; pg 183.
2. Pine CM. Community Oral Health. Wright 1st Edition 1997; pg 39.
3. Dunning JM. Principles of dental public health. Harvard 3rd edition 1980 pg 268.
4. World Health Organisation. Oral Health Surveys, Basic methods, 4th Edition, WHO Geneva, 1997.
5. Ministry of Health and Child Welfare, Zimbabwe. National Oral Health Survey. 1995 Part 2: 3-43.
6. Marthalar TM, Steiner M, Mel inghinia G, Bandi A. Caries prevalence in Swaziland. Int. Denta. J. 1994; 44: 393-401.
7. Petersen PE, Ruzanamikaja N. Oral health studies of children and adults in Madagascar. Int. Dent J. 1996, 4641-47.
8. Petersen PE, Mzee OM. Oral health profile of school children, mother and school teachers in Zanzibar. Community Dental Health 1998.
9. Muya RJ, Rambush E, Fejerskov O, Hobdell MH, Normark S. Changing and developing dental health services in Tanzania 1980-2000, 1984.
10. Mosha HJ, Ngilisho LAF, Nkwera H, Scheutz F, Poulsen S. Oral health status and treatment needs in different age groups in two regions of Tanzania. Comm Dent Oral Epidemiol 1994; 22:307-10.
11. Frencken J.: Is dental caries prevalence on the increase in Tanzania Odontostomatologie Tropicale X; (3/4) 1987;189-93.
12. Mosha HJ, Scheutz F. Dental caries in the permanent dentition of school children in Dar es Salaam 1979, 1983, 1989. Comm Dent Oral Epidemiol 1992;20:381-2.
13. Rugarabamu PGN, Poulsen S, Masalu JRP. A longitudinal study of occlusal caries among schoolchildren in Dar es Salaam, Tanzania. Comm Dent Oral Epidemiol 2002; 30:47-51.
14. Baelum V, Fejerskov O, Karring T. Oral hygiene, gingivitis and periodontal breakdown in adult Tanzanians. J Periodontol Res 1986; 21:221-32.
15. Lembariti BS. Prevalence and severity of periodontal conditions among adults in urban and rural Morogoro, Tanzania. Comm Dent Oral Epidemiol 1988; 16:240-3.
16. Mumghamba EGS. Periodontal conditions and treatment needs in Ilala district, Tanzania UDSM. A Dissertation 1990.
17. Kahabuka FK, Plasschaert A, van't Hof MA. Prevalence of teeth with untreated dental trauma among nursery and primary school pupils in Dar es salaam, Tanzania. Dental Traumatol, 2001;17: 109-13
19 Moshy J, Mosha HJ, Lema PA. Prevalence of maxillo-mandibular fractures in mainland Tanzania. East Afr Med J 1996;73:172-5.