

**Oral hygiene habits and knowledge on oral manifestations of HIV/AIDS among patients attending the counselling and therapy Centre at Temeke Hospital, Dar es Salaam. Berege GZ<sup>1</sup> · Simon ENM<sup>2</sup>**

<sup>1,2</sup> Dental School, Muhimbili University College of Health Sciences

**Key words**

Oral hygiene, knowledge, oral manifestations of HIV/AIDS, Temeke

**Abstract**

The oral cavity is one of the sites where manifestations of HIV/AIDS commonly appear, The aim of this study therefore, was to determine oral hygiene habits and knowledge related to oral manifestations of HIV/AIDS among patients attending the Counseling and Therapy Centre at Temeke Hospital, Dar es Salaam. A cross sectional study was carried out from August to September 2005 whereby all patients with serological diagnosis of HIV aged 15 years or above were included. A structured questionnaire (in Kiswahili language) was used. After giving an informed verbal consent, the patients were interviewed in a consultation room of the CTC with only the researcher present. One hundred and seventy five females and seventy-five males were interviewed. Oral thrush, oral mucosal and lip ulcerations were reported by 39.6% of the patients as being associated with HIV/AIDS. Dry mouth was reported by 1.6% and about 9.6% of the patients did not know at all any oral condition associated with HIV/AIDS. About 81% had never received oral health education and the media was reported by 9.6 % of the patients as their major source of oral health information. Two hundred and forty eight patients brushed at least once daily, 29.6% of whom did so to prevent oral malodour. Only 13 of the patients had ever visited a dental clinic. Over 76% of the visits were prompted by dental pain. About 78% thought that it was important for an HIV patient to inform the dental practitioner about his/her HIV status when visiting the dental clinic. It is concluded that majority of the HIV/AIDS patients displayed relatively little knowledge related to oral manifestations of HIV/AIDS. The media was the main source of oral health information. Generally, the patients possessed good oral hygiene practices but utilization of oral health services was mainly symptomatic rather than preventive.

Correspondence: Gemma Zacharia Berege, P. O. Box 65014, Dar es Salaam., Telephone number; 0741291238, beregemma@yahoo.com

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**Introduction**

Human Immunodeficiency Virus infection (HIV) and Acquired Immunodeficiency Syndrome (AIDS) affect various systems of the body (1,2). As the HIV infection progresses into AIDS, patients develop different symptoms, oral lesions being among the earliest clinical features (3-5). Oral candidiasis, Kaposi's sarcoma, periodontal conditions, oral ulcerations and salivary flow alterations are highly associated with immune depletion due to HIV infection. The presence of oral lesions has a significant impact on health-related quality of life, because oral health is associated with general health (6). Effective management of most of these oral lesions basically needs a combined approach of both systemic and local measures. Success of such integrated approach in preventing or managing the conditions is, to a large extent, dependent on meticulous oral hygiene (7-13). Several studies have shown a positive relationship between knowledge on oral health issues and self-oral care and use of oral health services (7,14-19). This implies that people with HIV/AIDS are

likely to adopt better self-oral care and utilization of oral health care services if they are knowledgeable about oral manifestations of HIV/AIDS.

HIV/AIDS patients form a special vulnerable group whose situation needs to be accurately analysed so as to exactly know the interventions that are required. No studies have been carried out to determine the oral hygiene habits and knowledge on oral manifestations of HIV/AIDS among HIV/AIDS patients in Tanzania. There is a paucity of information on the knowledge on HIV/AIDS oral manifestations. Such information would identify gaps in their knowledge and therefore determine the depth of oral health needed to be imparted to this group.

The aim of this study, therefore, was to determine oral hygiene habits and knowledge on oral manifestations of HIV/AIDS among patients attending the Counselling and Therapy Centre at Temeke Hospital, Dar es Salaam.

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## Subjects and Methods

### Subjects

The study participants were 250 patients aged 15 years and above with a serological diagnosis of HIV infection who were attending Counselling and Therapy Centre (CTC) at Temeke Municipal Hospital in Temeke district.

### Methods

A cross sectional study was carried out in August and September 2005 at the Temeke CTC. Participants were interviewed using a structured questionnaire (appendix II). Close-ended types of questions were used. The questionnaire had 30 questions that covered in detail the patient's oral hygiene habits and knowledge on oral manifestations of HIV/AIDS. All questionnaires were numbered serially. The interview was conducted in one of the consultation rooms within the CTC with the patient and the researcher only present. Consecutive patients attending the CTC at Temeke Municipal Hospital who gave an informed verbal consent were included in the study. Patients who refused to give consent and patients who could not cooperate were excluded from the study. Coding was done for the different variables and then entered into a computer and analyzed for frequencies, cross-tabulations and chi-square test using SPSS.10 software computer program (20).

### Ethical consideration

Ethical clearance was obtained from the Muhimbili University College of Health Sciences (MUCHS) of the University of Dar es Salaam, through the head of Preventive and Community Dentistry department and

permission was granted by the city health authorities.

### Results

A total of 250 patients were interviewed, majority (70%) of whom were females (Table 1). Over 67% of the patients were in the age group 30-49 years. Only 20.4% of the patients had secondary school education or above (Fig.1). The rest had not gone to school (7.6%), not completed primary school education (6.4%) or had primary school education (65.6%).

Oral thrush, oral mucosal and lip ulcerations were conditions mostly (39.6%) known by the patients to be associated with HIV/AIDS (Fig.2). Dry mouth was known to be associated to HIV/AIDS by only 1.6% of the patients. About 9% of the patients did not know at all any oral condition that could be associated with HIV/AIDS. Two hundred and three patients (81.2%) had never received oral health education (Table 2). Twenty-four (9.6 %) patients reported the media to be their major source of oral health information. Two hundred and forty eight patients brushed at least once daily (Table 3), 29.6% of whom responded that they brushed to prevent oral malodour. None of the patients could in anyway associate tooth brushing with periodontal diseases. Only 13 (5.2%) of the patients had ever visited a dental clinic. Over 76% of these visits were prompted by dental pain. About 78% of the patients thought that it was important for an HIV/AIDS patient to inform the dental practitioner about his/her HIV status when visiting the dental clinic for treatment.

Table 1. Distribution of patients by age and sex

Age-groups	Sex of the patient		Total
	Male	Female	
15-29 years	9 (12.0)	47 (26.9)	56 (22.4)
30-39 years	27 (36.0)	77 (44.0)	104 (41.6)
40-49 years	27 (36.0)	38 (21.7)	65 (26.0)
≥ 50 years	12 (16.0)	13 (7.4)	25 (10.0)
<b>Total</b>	<b>75 (100.0)</b>	<b>175 (100.0)</b>	<b>250 (100.0)</b>

**Discussion**

This study focused on oral hygiene habits and knowledge related to oral manifestations of HIV/AIDS among patients attending the CTC at Temeke. A certain degree of over-reporting, on those behavioural aspects which are considered by the patients to be good and under-reporting on those which are considered to be bad, should be assumed since this seems to be an inherent problem of studies of this nature (21,22).

There were significantly more females than males with an overall age range of 15 - 65 years and a mean of 36.8 years (Table 1). The difference in the number of females compared to males reflects the 2004 AIDS Global Report, which showed that by December 2003 women accounted for more than half of all people living with HIV in sub-Saharan Africa (23). Majority of the participants had either primary or below primary education (Fig.1).

Table 2: Distribution of participants by exposure to oral health education and material used for cleaning their teeth

	Sex of the patient		Total	X <sup>2</sup>	p
	Male	Female			
Oral health education					
Yes	17 (22.7)	30 (17.1)	47 (18.8)		
No	58 (77.3)	145 (82.9)	203 (81.2)	1.049	.306
Total	75 (100.0)	175 (100.0)	250 (100.0)		
Type of toothbrush used					
Commercial toothbrush	73 (97.3)	171 (98.8)	244 (98.4)		
Mswaki	2 (2.7)	2 (1.2)	4 (1.6)	.752	.386
Total	75 (100.0)	173 (100.0)	248 (100.0)		
Use of toothpaste					
Toothpaste	71 (94.7)	165 (95.4)	236 (95.2)		
Other materials	1 (1.3)	4 (2.3)	5 (2.0)		
None	3 (4.0)	4 (2.3)	7 (2.8)	.779	.677
Total	75 (100.0)	173 (100.0)	248 (100.0)		

The majority (84.8%) of the patients were well aware that HIV/AIDS affected oral health. Proportionately, more patients with above secondary school education could associate oral hygiene and oral health compared to those with lower levels of education (i.e. primary school and below). An element of oral health which was taught in schools as part of general health as well as reading and understanding leaf-lets and pamphlets in hospitals and other public places might explain this observed difference. Thirty percent of the patients knew that oral mucosal and lip ulcerations were related to HIV/AIDS (Fig.2). All together, oral mucosa ulcerations, lip ulcerations and oral thrush were associated with HIV/AIDS by 37.6% of the patients. Other conditions, albeit in small numbers, which were also associated with HIV/AIDS included dry mouth and oral tumours. Over 9% of the patients did not know at all any oral condition that could be associated with HIV/AIDS. Ironically, the commonly seen neoplasm in HIV/AIDS like Kaposi's sarcoma or lymphomas were not known to any of the patients (Fig.2). The

displayed ignorance regarding ailments like oral neoplasm means that the patients cannot report early for treatment, which is a prerequisite for successful management (24). It is apparent that the only conditions known to the patients seem to be those that present signs and symptoms, especially pain and discomfort, or affect aesthetics. One can therefore correctly speculate that these patients new these conditions through experiencing a certain degree of suffering.

The majority (92.4%) of the patients knew that oral hygiene practices could affect oral health. This was also reflected in the number of patients who brushed their teeth. The current oral health knowledge of this vulnerable group can be complemented by education on proper oral hygiene practices and consequently better quality of life. Furthermore, awareness regarding periodontal health status accompanied by knowledge about the periodontal disease process can help to improve self-oral health care and hence prevent periodontal diseases (16,17).

Table 3: Distribution of participants by tooth brushing habits

	Sex of the patient		Total	X <sup>2</sup>	p
	Male	Female			
Daily tooth brushing					
Yes	75 (100.0)	172 (98.3)	247 (98.8)	1.301	.254
No		3 (1.7)	3 (1.2)		
Total	75 (100.0)	175 (100.0)	250 (100.0)		
Tooth brushing frequency				2.202	.138
Once a day	26 (34.7)	44 (25.4)	70 (28.2)		
Twice or more a day	49 (65.3)	129 (74.6)	178 (71.8)		
Total	75 (100.0)	173 (100.0)	248 (100.0)		
Tongue brushing				7.237	.007
Yes	55 (73.3)	151 (87.3)	206 (83.1)		
No	20 (26.7)	22 (12.7)	42 (16.9)		
Total	75 (100.0)	173 (100.0)	248 (100.0)		

The fact that 81.2% of all respondents had not received any formal oral health education implies that the oral health care delivery system in Tanzania has not placed oral health education at a level of importance it deserves (Table 2). This is contrary to many reports published in Scandinavian countries where oral health education is formalized in all school curricula (25,26). There is need to formalize oral health education in oral health care delivery system in Tanzania.

Majority of the respondents reported to brush at least once a day (Table 3). If tooth brushing was done properly, majority of them would have healthy gums since poor oral hygiene has causal relationship with gingivitis and advanced periodontal diseases (27-29). The findings in this study are similar to those reported by Nyandindi et al. (1994) in a study done in Ifala, Tanzania (30). But Mumghamba et al. (1995) did show that reported frequency of tooth brushing does not correlate with improved gingival health (31).

Often, majority of people do not brush properly, thus leaving many sites with undisturbed plaque.

Most of the respondents reported using factory made toothbrushes (Table 2). These findings are similar to those reported by Mumghamba (1990) and Nyandindi (1989) (32,33). Comparison studies on efficacy of toothbrushes and miswaki (wooden brushes) conducted in Tanzania did show no differences. The information that a person can maintain proper oral hygiene using mswaki need to be communicated to the people as an assurance for those who cannot afford to purchase factory made toothbrushes. In fact, the

minority who use miswaki should be encouraged and assisted so that they can maintain proper oral hygiene using such type of toothbrushes.

Although majority of respondents reported that they used toothpaste when brushing their teeth, the 18% who used other means (e.g. salt and charcoal) is large enough a proportion that indicates the need for education on the benefits of using fluoridated toothpaste as a caries and periodontal disease prevention measure and encourage them to use toothpaste on regular basis (Table 2).

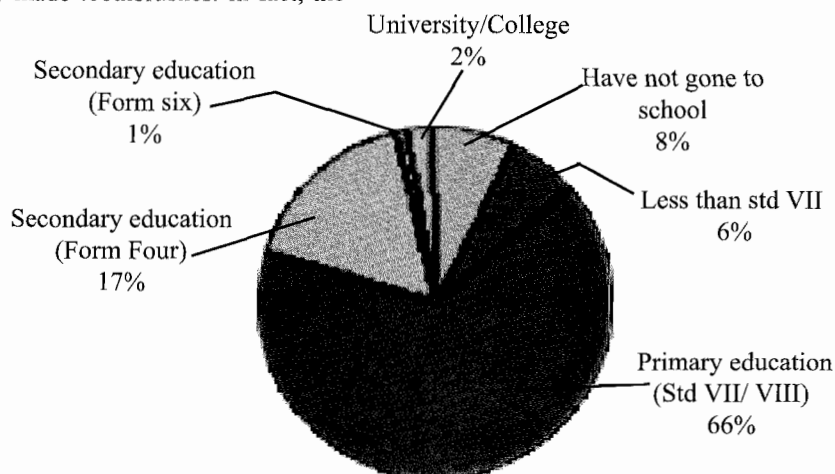


Figure 1: Patients distribution by education level

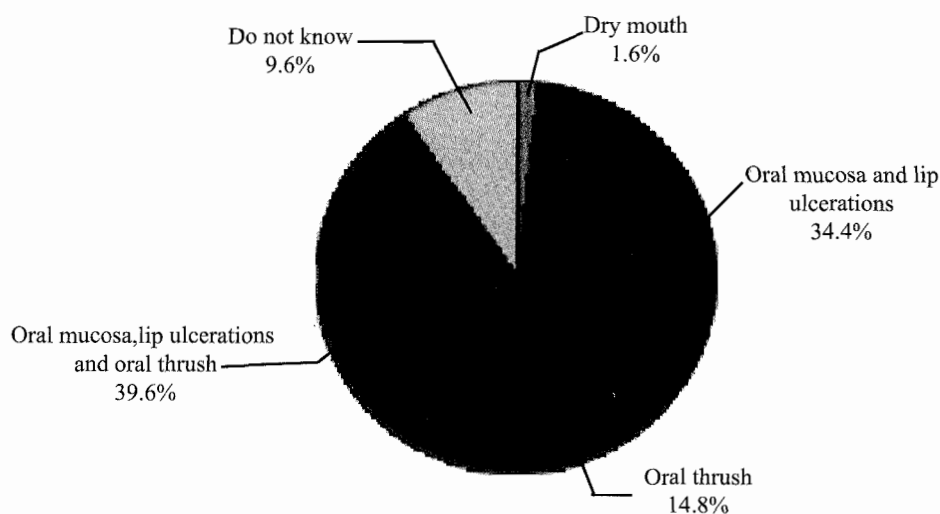


Figure 2. Proportion of participants who said that a particular oral condition was associated with HIV/AIDS

Those not brushing the tongue should be educated that the tongue is predisposed to accumulation of oral debris and microorganisms (34), which in HIV positive individuals, may lead to acceleration of development of fungal infections. They should, therefore, be encouraged to brush the dorsum of the tongue to reduce possibility of tongue infection.

The lack of knowledge on oral manifestations of HIV/AIDS displayed in this study indicates the need for education on oral manifestations of HIV/AIDS since these episodes indicate lowering of immune status and should be an indication for urgent need for health care service including CD4<sup>+</sup> cell counts.

Self-assessment of the oral cavity on daily basis as was done by the majority (92.4%) in this group increases the chances of suspecting or early discovery of any oral conditions, hence increasing the possibilities of successful treatment. This would be more meaningful if the patients had adequate knowledge of the basic characteristics of the common oral manifestations of HIV/AIDS.

Only 13 (5.2%) of the patients had ever visited the dental clinic since they were discovered to be HIV positive, among whom 10 had a toothache and only one went for routine checkup. These findings reveal a symptomatic rather than a preventive utilisation of dental services. Several behavioural studies had similarly shown such under utilisation and symptomatic utilisation of dental services (15,17). This might be attributable to lack of awareness on the importance of regular dental check ups and unavailability of dental personnel within the CTC management team. HIV/AIDS patients in most cases concomitantly suffer from several conditions, which absorb most of their attention. Seeking attention of oral health personnel when they have no oral symptoms seems unlikely. Nevertheless, 179 (71.6%) patients responded that regular dental check up is important. It might therefore be correctly presumed that if knowledge regarding oral manifestations of HIV/AIDS is improved in these patients and dental services made available, their attitudes might change positively. Despite the small number (5.2%) of those who had visited the dental clinic, generally the majority (78%) thought that it is important to inform the dental practitioner of one's HIV serological status. This

draws the attention of the practitioner to search for any signs of HIV/AIDS manifestations resulting in early detection and management. Because of the existing delicate situation in the oral cavity in HIV/AIDS patients and the dynamics that may lead to worsening of the general body condition, a positive attitude towards regular dental visits to monitor oral health is necessary.

In conclusion, the majority of the HIV/AIDS patients displayed relatively little knowledge related to oral manifestations of HIV/AIDS. However, despite this apparent lack of adequate knowledge, their oral hygiene practices were good. The media was the main source of information for the few who had received oral health education. In this group of patients, utilization of oral health services was mainly symptomatic rather than preventive.

#### **Recommendations**

Immediate deliberate efforts should be made to equip people living with HIV/AIDS in Temeke Municipal and Tanzania at large with proper knowledge on oral health by including oral health personnel in the team of health care workers in HIV/AIDS clinics. A close monitoring by the dental profession is emphasized to ensure that the society gets proper and adequate information on oral health.

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*Three buddies die in a car crash, and they find themselves at an entrance to heaven. They are all asked, "When you are in your casket and friends and family are mourning, what would you like to hear them say about you?"*

*The first guy says, "I would like to hear them say that I was a great doctor of my time, and a great family man."*

*The second guy says, "I would like to hear that I was wonderful husband and school teacher who made a huge difference in our children of tomorrow."*

*The last guy replies, "I would like to hear them say ....  
LOOK!!! HE'S MOVING!!!"*