

Awareness of HIV/AIDS and its oral manifestations among people living with HIV in Dar es Salaam, Tanzania

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The aim of this study was to investigate the awareness of the oral manifestations of HIV/AIDS and general issues about HIV and AIDS among people living with HIV (PLHIV) in Dar es Salaam, Tanzania. A structured questionnaire was used to collect information from 187 participants chosen by convenience sampling from NGOs supporting PLHIV. A total of 13.4% of the participants were completely unaware of the oral manifestations of HIV/AIDS whereas all participants were fully aware of general symptoms of AIDS. There were no significant associations between awareness of oral manifestations and general awareness of HIV/AIDS, or level of education. Participants were relatively well aware of the different types of oral manifestations (e.g. oral ulcers 87%, oral candidiasis 84%) while their knowledge of the management of specific oral manifestations and the problems associated with oral manifestations was more limited. It is recommended that health authorities in Tanzania establish population-oriented health education for improving knowledge about oral disease in HIV/AIDS and that oral health professionals provide sound information to PLHIV in community-outreach oral healthcare programmes.

Keywords: Africa, health knowledge, oral ulcers, oral candidiasis, oral hairy leukoplakia, oral hygiene, self evaluation, symptoms

Introduction

The number of people living with HIV in 2004 was estimated at about 40 million, which is the highest level ever. Approximately 4.9 million people were reported to have acquired HIV in 2004 (WHO, 2005). The main signs and symptoms observed in AIDS patients include diarrhoea, generalised multiple lymphadenopathy, weight loss, and other symptoms related to secondary or opportunistic infections, such as fever, cough, and nodular swelling of the skin (Kawo, Karlsson, Lyamuya, Kalokola, Fataki, Kazimoto, Kitundu, Msaky, Munubhi, Ostborn, Bredberg-Raden, Swai, Mbise, Msengi, Mhalu & Biberfeld, 2000; Holmes, Losina, Walensky, Yazdanpanah & Freedberg, 2003).

In the oral cavity, HIV/AIDS may particularly manifest itself in the development of oral candidiasis, oral ulcers, non-tender bilateral swelling of the parotid glands, and nodular tumours or Kaposi's Sarcoma (Colmenero, Gamallo, Pintado, Patron, Sierra & Valencia, 1991; Wang, Schroeter & Su, 1995; Shiboski, 1997; Bendick, Scheifele & Reichart, 2002). These oral manifestations are often among the first symptoms of HIV/AIDS and thus can be useful in early detection of the disease (Ramirez-Amador, Esquivel-Pedreza, Ponce de Leon & Ponce de Leon, 1996; Challa-

combe, Coogan & Williams, 2002; Kerdpon, Pongsirwet, Pangsomboon, Iamaroon, Kampoo, Sretrirutchai, Geater & Robison, 2004).

In sub-Saharan Africa, a high risk of becoming infected with HIV is associated with early sexual debut and early marriage, a high number of partners particularly among sex workers, and the presence of other sexually transmitted infections, especially genital herpes (Holmes *et al.*, 2003). A high risk of infection with HIV is also associated with a significant age difference between partners and the absence of male circumcision (O'Farrell & Egger, 2000). In Tanzania, the most affected groups or groups at-risk are youth, children, and women of childbearing age (16–35 years). Other vulnerable groups include 'mobile populations,' sex workers and health workers. Factors contributing to the spread of HIV may include inadequate knowledge about HIV, inaccessibility to healthcare services, as well as traditional practices such as female circumcision and other body mutilations (Sadik, 1997).

People living with HIV (PLHIV) are particularly in need of a proper diet with the nutritional value to enable the body to cope with a compromised immune system. They are often unable to eat properly because of functional impairment

due to conditions such as oral candidiasis, aphthous ulcers, aggressive periodontal disease, dry mouth, pain and discomfort. A few studies have been conducted on oral manifestations of HIV/AIDS in African countries, more specifically the occurrence of oral manifestations among PLHIV (Schiodt, Bakilana, Hiza, Shao, Bygbjerg, Mbagi, Vestergaard, Nielsen, Lauritzen & Lerche, 1990; Tukutuku, Muyembe-Tamfum, Kayembe, Odio, Kandi & Ntumba, 1990; Itula, MacKenzie, Lewis & Mortimer, 1997; Matee, Scheutz & Moshy, 2000).

The need to establish systematic oral health promotion programmes for PLHIV is growing rapidly in the African region. Therefore, the aim of this study was to ascertain the awareness of HIV/AIDS oral manifestations and the systemic characteristics of HIV/AIDS among PLHIV in Dar es Salaam, Tanzania.

Materials and methods

Study population

This study was carried out as a cross-sectional survey in Dar es Salaam, Tanzania. Nineteen NGOs providing services to PLHIV were approached and their leaders were requested to recruit, on a typical day, PLHIV who were registered with their organisations. The study involved personal interviews and intra-oral examinations, and the participants were subsequently offered emergency care, referral to relevant clinics where necessary, and health education. Convenient sampling was applied in order to achieve a representative sample of PLHIV service users. In total, 245 individuals made themselves available. Fifteen were not included in the study as they were under 18 years of age. Forty-three persons were excluded from the analysis due to incomplete information. Of the remaining 187 participants, 156 individuals (83.4%) were women and 32 (16.6%) were men. Their age range was 20 to 63 years with a mean of 37.8 years. The mean age was 37.5 years for females and

39.2 years for males. Seventy-two percent of all participants had up to an elementary education while 28% had a secondary school education or higher.

Methodology

Informed consent was obtained from each participant before embarking on the interview. Participants were individually interviewed using structured questionnaires that inquired about participants' awareness of distinct oral manifestations of HIV or AIDS (e.g. oral candidiasis, oral tumours, oral ulcers, angular lesions and periodontal conditions), modes of HIV transmission, general health symptoms and knowledge of at-risk groups. Those who were aware of oral manifestations were further asked if they knew about possible management of these manifestations, such as with analgesics, antibiotics, antifungal treatments or various mouthwashes. Participants were additionally asked if they knew about any quality-of-life problems associated with oral manifestations, such as pain, difficulty in eating, foul breath, and altered taste. Interviews took place in the School of Dentistry or within the premises of the respective NGOs. Data from questionnaires were processed and analysed using SPSS version 14.0 and frequency distributions were computed.

Results

Respondents were asked to agree or disagree with 15 statements about ill health in HIV/AIDS, awareness of oral manifestations in HIV/AIDS, the different types of manifestation, and management of problems associated with oral manifestations.

Table 1 indicates that awareness was high about mode of transmission of HIV infection, general health symptoms and persons at-risk. As shown in Table 2, most respondents knew about the oral symptoms related to HIV/AIDS. Oral ulcers and oral candidiasis were reported by the vast majority of individuals.

Table 1: Distribution of PLHIV in Tanzania (n = 187) according to awareness of general characteristics of HIV/AIDS

| | Aware | | Not aware | |
|---|-------|------|-----------|------|
| | n | % | n | % |
| Mode of transmission | | | | |
| Sexual contact | 183 | 97.9 | 4 | 2.1 |
| Mother-to-child | 169 | 90.4 | 18 | 9.6 |
| Blood transfusion | 175 | 93.6 | 12 | 6.4 |
| Sharing contaminated instruments | 180 | 96.3 | 7 | 3.7 |
| Symptoms of HIV/AIDS | | | | |
| Weight loss | 179 | 95.7 | 8 | 4.3 |
| Skin diseases | 178 | 95.2 | 9 | 4.8 |
| Oral diseases | 167 | 89.3 | 20 | 10.7 |
| Opportunistic infections (e.g. pneumonia, TB) | 182 | 97.3 | 5 | 2.7 |
| Groups at risk for contracting HIV infection | | | | |
| Women | 178 | 95.2 | 9 | 4.8 |
| Newborns/children | 168 | 89.8 | 19 | 10.2 |
| Youths | 182 | 97.3 | 5 | 2.7 |
| Sex workers | 177 | 94.7 | 10 | 5.3 |
| Soldiers | 161 | 86.1 | 26 | 13.9 |
| Health workers | 142 | 75.9 | 45 | 24.1 |
| Long-distance drivers | 171 | 91.4 | 16 | 8.6 |

Table 2: Distribution of PLHIV in Tanzania (n = 187) by awareness of oral manifestations of HIV/AIDS

| | Aware | | Not aware | |
|--|-------|------|-----------|------|
| | n | % | n | % |
| Awareness of oral manifestations of HIV/AIDS | 162 | 86.6 | 25 | 13.4 |
| Different types of oral manifestations: | | | | |
| Periodontal conditions | 117 | 62.6 | 70 | 37.4 |
| Oral ulcers | 163 | 87.2 | 24 | 12.8 |
| Oral tumours | 126 | 67.4 | 61 | 32.6 |
| Angular lesions | 145 | 77.5 | 42 | 22.5 |
| Oral candidiasis | 157 | 84 | 30 | 16 |
| Awareness of problems associated with oral manifestations: | | | | |
| Pain | 93 | 49.7 | 94 | 50.3 |
| Difficulty eating | 97 | 51.9 | 90 | 48.1 |
| Bad/foul breath | 90 | 48.1 | 97 | 51.9 |
| Bad/altered taste | 92 | 49.2 | 95 | 50.8 |
| Awareness of management of oral manifestations | 73 | 39 | 114 | 61 |
| Awareness of specific management of oral manifestations: | | | | |
| Analgesics | 58 | 31 | 129 | 69 |
| Mouthwashes | 72 | 38.5 | 115 | 61.5 |
| Antifungal | 70 | 37.4 | 117 | 62.6 |
| Antibiotics | 42 | 22.5 | 145 | 77.5 |
| Wish to receive education on oral manifestations | 186 | 99.5 | 1 | 0.5 |

Table 3: Distribution of correct answers by 187 PLHIV in Tanzania on general knowledge of HIV/AIDS and on oral manifestations of HIV/AIDS

| Questionnaire item | Persons with correct answers on general knowledge about HIV/AIDS | | Persons with correct answers on knowledge about oral manifestations of HIV/AIDS | |
|--------------------|--|------|---|------|
| | Frequency | % | Frequency | % |
| 0 | 0 | 0 | 25 | 13.4 |
| 2 | 0 | 0 | 3 | 1.6 |
| 3 | 1 | 0.5 | 3 | 1.6 |
| 4 | 0 | 0 | 9 | 4.8 |
| 5 | 1 | 0.5 | 12 | 6.4 |
| 6 | 0 | 0 | 46 | 24.6 |
| 7 | 2 | 1.1 | 3 | 1.6 |
| 8 | 4 | 2.1 | 5 | 2.7 |
| 9 | 2 | 1.1 | 6 | 3.2 |
| 10 | 4 | 2.1 | 14 | 7.5 |
| 11 | 5 | 2.7 | 5 | 2.7 |
| 12 | 10 | 5.3 | 12 | 6.4 |
| 13 | 19 | 10.2 | 12 | 6.4 |
| 14 | 31 | 16.6 | 13 | 7 |
| 15 | 108 | 57.8 | 25 | 13.4 |
| Total | 187 | 100 | 187 | 100 |

Meanwhile, as illustrated in Table 3, only 13.4% of the participants responded positively to all 15 oral health knowledge items, 24.6% of participants confirmed six options, while 13.4% were completely unaware of the oral manifestations of HIV/AIDS. Additionally, another 15 questions were posed in order to elucidate knowledge about modes of transmission, at-risk groups and general symptoms of HIV/AIDS. Study participants were relatively well informed about HIV and AIDS as 57.8% responded positively to all 15 options.

There were no statistically significant associations between awareness of oral manifestations and general awareness about HIV and AIDS or level of education.

Discussion

Re-screening of participants for HIV status was not performed as registration for membership of the approached organisations is done upon submission of HIV screening results. Furthermore, we assumed that a person would not register as being HIV-positive if in fact he or she was not.

Since a convenient sample was used, it is possible that participants of this study are PLHIV who have accepted their condition and therefore might be somewhat more determined and concerned about their health. Meanwhile, this study may outline a relevant picture of HIV/AIDS

awareness among PLHIV in Dar es Salaam and we have no reason to believe that participants of the study are different from other PLHIV in Dar es Salaam or East Africa in terms of socio-economic status.

The majority of the participants were women and most of these had up to elementary education only. This may partly reflect the experience that women often tend to declare their serostatus and to join volunteer groups out of poverty and for sympathy and assistance (Sadik, 1997). Men are considered the breadwinners in Tanzanian society, they are expected to show fortitude and they receive little sympathy or support from social networks. The fact that most participants had a low level of education may emphasise that this is the most vulnerable group but it could also indicate that educated people can afford to take care of their health and do not need to join volunteer organisations. A good number of participants were members of two main organisations (Walio Katika Mapambano na UKIMWI Tanzania [WAMATA] and Pastoral Activities and Services for People with AIDS, Dar es Salaam Archdiocese [PASADA]). These two NGOs are popular possibly because of their capacity to provide supplies and services, including free medical care, and they recently offered antiretroviral treatment free of charge.

Most participants were aware of the general characteristics of AIDS and modes of HIV transmission, at-risk groups and symptoms of AIDS. The high level of awareness may be explained by the fact that all subjects were sero-positive and thus likely to have learned about the condition affecting them. In Tanzania there is wide mass media coverage to improve general knowledge about HIV and AIDS.

In comparison with the general level of knowledge about HIV and AIDS, awareness of oral manifestations of HIV/AIDS was somewhat lower among the participants. This is probably explained by the low frequency of dental visits by PLHIV and the low level of attention paid to the oral implications of HIV or AIDS by the dental profession and other stakeholders.

As is also the case for general manifestations of AIDS, oral disease symptoms in HIV/AIDS are largely determined by socio-behavioural factors. In sub-Saharan Africa, the burden of oral disease and illness is growing as a social and public health problem and poor oral health in relation to HIV and AIDS represents a double burden particularly to people living in deprived communities. Not only do oral manifestations negatively impact quality of life, causing pain and suffering, but PLHIV are often stigmatised because of the poor appearance of their teeth or foul breath. In addition, PLHIV are for the most part underserved in oral healthcare as they are neglected or ignored by dentists.

The WHO Global Oral Health Program recently formulated policies for prevention of oral manifestations in HIV/AIDS (Petersen, 2006). Prevention of HIV/AIDS-related oral disease is based on the involvement of primary health-care workers as well as oral health professionals in early detection and screening, on the integration of oral disease prevention and oral health promotion into community and national HIV/AIDS programmes, and on WHO technical support to build capacity in countries.

The results of this study show that PLHIV are aware of general issues related to HIV/AIDS but less aware of the

oral manifestations of HIV/AIDS. It is recommended that the dental profession in Tanzania strengthen its public health education, and that community-outreach oral health programmes targeting PLHIV focus on improving knowledge of the oral manifestations of HIV/AIDS. It is important that the Tanzanian health authorities revise the national strategy for control of HIV/AIDS to incorporate the prevention of oral diseases related to HIV infection.

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References

- Bendick, C., Scheifele, C. & Reichart, P.A. (2002) Oral manifestations in 101 Cambodians with HIV and AIDS. *Journal of Oral Pathology Medicine* 31, pp. 1–4.
- Challacombe, S.J., Coogan, M.M. & Williams, D.M. (2002) Overview of the 4th International Workshop on the Oral Manifestations of HIV Infection. *Oral Diseases* 8 (Suppl. 2), pp. S9–S14.
- Colmenero, C., Gamallo, C., Pintado, V., Patron, M., Sierra, I. & Valencia, E. (1991) AIDS-related lymphoma of the oral cavity. *International Journal of Oral and Maxillofacial Surgery* 20, pp. 2–6.
- Holmes, C.B., Losina, E., Walensky, R.P., Yazdanpanah, Y. & Freedberg, K.A. (2003) Review of human immunodeficiency virus type-1-related opportunistic infections in sub-Saharan Africa. *Clinical Infectious Diseases* 36, pp. 652–662.
- Itula, P.F., MacKenzie, S.B., Lewis, K. & Mortimer, P.P. (1997) Oral-facial manifestations and seroprevalence of HIV infection in Namibian dental patients. *Oral Diseases* 3, pp. 551–553.
- Kawo, G., Karlsson, K., Lyamuya, E., Kalokola, F., Fataki, M., Kazimoto, T., Kitundu, J., Msaky, H., Munubhi, E., Ostborn, A., Bredberg-Raden, U., Swai, A., Mbise, R., Msengi, A., Mhalu, F. & Biberfeld, G. (2000) Prevalence of HIV type-1 infection, associated clinical features and mortality among hospitalized children in Dar es Salaam, Tanzania. *Scandinavian Journal of Infectious Diseases* 32, pp. 357–363.
- Kerdpon, D., Pongsiriwet, S., Pangsomboon, K., Iamaron, A., Kampoo, K., Sretrirutchai, S., Geater, A. & Robison, V. (2004) Oral manifestations of HIV infection in relation to clinical and CD4 immunological status in northern and southern Thai patients. *Oral Diseases* 10, pp. 138–144.
- Matee, M.I., Scheutz, F. & Moshy, J. (2000) Occurrence of oral lesions in relation to clinical and immunological status among HIV-infected adults in Tanzania. *Oral Diseases* 6, pp. 106–111.
- O'Farrell, N. & Egger, M. (2000) Circumcision in men and the prevention of HIV infection: a 'meta-analysis' revisited. *International Journal of STD & AIDS* 11, pp. 137–142.
- Petersen, P.E. (2006) Policy for prevention of oral manifestations in HIV/AIDS: the approach of the WHO Global Oral Health Program. *Advances in Dental Research* 19, pp. 17–20.
- Ramirez-Amador, V.A., Esquivel-Pedreza, L., Ponce de Leon, S. & Ponce de Leon, S. (1996) Prognostic value of oral candidiasis and hairy leukoplakia in 111 Mexican HIV-infected patients. *Journal of Oral Pathology Medicine* 25, pp. 206–211.
- Sadik, N. (1997) Reproductive health/family planning and the health of infants, girls and women. *Indian Journal of Pediatrics* 64, pp. 739–744.
- Schiødt, M., Bakilana, P.B., Hiza, J.F., Shao, J.F., Bygbjerg, I.B., Mbagi, I., Vestergaard, B.F., Nielsen, C.M., Lauritzen, E. & Lerche, B. (1990) Oral candidiasis and hairy leukoplakia correlate with HIV infection in Tanzania. *Oral Surgery, Oral Medicine and Oral Pathology* 69, pp. 591–596.

- Shiboski, C.H. (1997) Epidemiology of HIV-related oral manifestations in women: a review. *Oral Diseases* 1, pp. 18–27.
- Tukutuku, K., Muyembe-Tamfum, L., Kayembe, K., Odio, W., Kandi, K. & Ntumba, M. (1990) Oral manifestations of AIDS in heterosexual population in a Zaire hospital. *Journal of Oral Pathology Medicine* 19, pp. 232–234.
- Wang, C.Y., Schroeter, A.L. & Su, W.P. (1995) Acquired immunodeficiency syndrome-related Kaposi's sarcoma. *Mayo Clinical Proceedings* 70, pp. 869–879.
- WHO (2005) *HIV/AIDS Epidemiological Surveillance Report for the WHO African Region, 2005 Update*. Harare, World Health Organization, Regional Office for Africa.