

Gender and Oral Manifestations of HIV Infection Among Adult Nigerians

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ABSTRACT

Oral manifestations were studied in 305 adult Nigerians with HIV infection. Data collected were demographic (age, sex, marital status, educational status and occupation) and clinical (mode of transmission, general manifestations and oral manifestations of HIV infection). The chi-square test was used in test for significance between variables and p values less than 0.05 were regarded as significant. A total of 47.5% patients had oral manifestations. There were 67.6% females and 32.4% males ($p < 0.001$). The patients ranged in age from 19-70 years. Heterosexual contact with multiple sex partners was the most common mode of transmission of infection (42.9% in females and 74.5% in males, $p < 0.05$). Candidiasis was the most common oral manifestation (78.6% in females and 78.7% in males $p > 0.05$). The study concluded that similar demographic and clinical characteristics were observed in the occurrence of oral manifestations of HIV infection in both male and female Nigerians. (*Rev Afr Santé Reprod* 2006; 10[2]:81-89)

ABSTRACT

Les genres et les manifestations orales de l'infection du VIH chez les adultes nigériens. Les manifestations ont été étudiées chez 305 adultes nigériens qui ont été infectés par le VIH. Les données collectées étaient démographiques (âge, sexe, état civil, niveau d'instruction et le métier) et cliniques (mode de transmission, les manifestations générales et les manifestations orales de l'infection VIH). Le test χ^2 a été utilisé pour rechercher la signification entre les variables et les valeurs p qui sont inférieures à 0,05 ont été considérées comme étaient significatives. Au total, 47,5% des patients avaient des manifestations orales. Il y avait 67,6% femmes et 32,4% hommes ($p < 0,02$). Les âges des patients ont variés entre 19 et 70 ans. Le contact hétérosexuel avec les partenaires sexuels multiples était le mode de transmission de l'infection (42,9% chez les femmes et 74,5% chez les hommes ($p > 0,05$)). L'étude avait conclu que les caractéristiques cliniques et démographiques ont été constatées dans les éventualte des manifestations orales de l'infection du VIH chez les hommes et les femmes nigériens. (*Rev Afr Santé Reprod* 2006; 10[2]:81-89)

KEY WORDS: *Transmission, heterosexual contact, sex partners*

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Introduction

Perhaps, no singular event has had a profound impact on oral health and oral health-care delivery as the human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS) pandemic.¹ Notable in this regard is the emergence of oral opportunistic manifestations and cross infection control.²⁻⁵ Oral manifestations were among the early documented signs of HIV infection and to date, over 40 manifestations have been described.⁶⁻⁷ Oral manifestations in the most, appear as opportunistic infections and are seen in 70 to 90% of infected individuals.^{8,9}

Oral manifestations of HIV infection are important for several reasons. They may represent the first signs of the disease.⁶ This is significant from a diagnostic and therapeutic viewpoint. Early recognition and subsequent antiretroviral therapy will reduce the morbidity and mortality associated with the disease.^{7,10} Oral manifestations can serve as clinical correlates of CD4 count and viral load³ as these two parameters are highly predictive markers of severe immune deterioration and disease progression.⁷

Oral manifestations can serve as criteria for entry into clinical trials³. They are also included in natural history studies, staging and classification schemes for HIV infections.³

There is an increasing awareness that health and disease are affected by gender differences.¹¹ An earlier study had observed the paucity of research relating oral manifestations of HIV infection to gender.¹² This same report¹² showed that 33% of the study population were females with a mean age of 33 years and that the prevalence of HIV-related oral lesion was significantly higher in women than in men. Also, Khongkunthain, *et. al.*¹³ showed that 85.1% of their study population were females with a median age of 31.3 years. However, they reported that men were more significantly affected by the oral manifestation of HIV infection. In both studies^{12,13} candidiasis was the most common HIV-related oral manifestation. Shiboski,¹⁴ in a

review of the epidemiology of HIV-related oral manifestations in women spanning over 15 years found that some lesions like hairy leukoplakia and Kaposi's sarcoma appeared to be gender related.

A search of the literature has shown that very little data exists on the subject of gender and oral manifestations of HIV infection in our environment. The aim of this study was to contribute to the scanty literature on the spectrum of oral manifestations related to gender in HIV infection and to compare the findings with those reported in the literature. An understanding of the gender differences in oral manifestations of HIV infection will lead to improved management of the patients affected.

Methods

During an 18-month period (June 2002 to December 2003), consecutive patients with HIV infection were seen at the medicine and dental clinics of the University of Benin Teaching Hospital (UBTH), Edo State, Nigeria. The dental patients were those whose medical history and oral lesions led to a suspicion of HIV infection and subsequent positive report on retroviral screening, while the medical patients were already diagnosed HIV/AIDS cases and oral examination was included as a part of the physical examination. In both cases, pre-test counseling was done and consent obtained before an ELISA test. Positive results from two different ELISA techniques were taken as confirmatory evidence of HIV antibodies.¹⁵ Data documented included demographic-[age, sex, marital status, occupation, educational status (primary, secondary or tertiary)] and clinical-[mode of transmission, general manifestations and oro-facial manifestations related to HIV infection]. Three dental surgeons and a physician evaluated the patients according to the method outlined by Zain, *et. al.*¹⁶ Diagnosis of oro-facial manifestations was based on clinical findings, supplemented by biopsy were clinically, a diagnosis was not possible. Descriptive statistics and statistical analysis was done with the SPSS.

The chi-square test was used to test for significance and p values below 0.05 were regarded as significant.

A limitation with this study lies in the fact that since all dental patients were not screened for HIV, it is likely that some patients with HIV disease but no oral manifestation may have been excluded. This would affect the incidence and prevalence of the disease and the number of patients with oral manifestations.

Results

Three hundred and five patients were seen during the study period. Of these, 145 (47.5%) had orofacial manifestations of HIV infection.

Age and Gender

There were 98(67.6%) females and 47(32.4%) males giving a female to male ratio of 2:1. The females ranged in age from 19-60 years with a mean age of 33.2 years (SD 6.75 years). The males were aged 26-70 years with a mean age of 36.3 years (SD 9.98 years) (Table 1). These differences in gender and age showed a statistically significant association ($X^2 = 32.049$, $p < 0.001$)

Marital Status

Table 1 showed the marital status of patients. Most were married- females 46(46.9%) and males 39(83.0%). These differences were statistically significant ($X^2 = 18.780$, $p < 0.001$).

Table 1. Demographic characteristics of patients

Age range (in years)	Female (n=98)(%)	Male (n=47)(%)
21-30	47 (47.9%)	6 (12.8%)
31-40	30 (30.6%)	17 (36.1%)
41-50	15 (15.3%)	15 (31.9%)
51-60	6 (6.1%)	7 (14.9%)
61-70	–	2 (4.3%)
Marital status		
Married	46(46.9%)	39(83.0%)
Single	36(36.7%)	8(17.0%)
Widow	13(13.3%)	–
Divorced	3(3.1%)	–
Occupation		
Trading	42(42.8%)	23(48.9%)
Student	13(13.3%)	2(4.3%)
Tailoring	11(11.2%)	6(12.8%)
Teaching	10(10.2%)	2(4.3%)
Civil servant	8(8.2%)	13(27.6%)
House wife	7(7.1%)	–
Cashier	3(3.1%)	–
Unemployed	4(4.1%)	1(2.1%)
Education		
Primary	38(38.8%)	17(36.1%)
Secondary	34(34.7%)	20(42.6%)
Tertiary	26(26.5%)	10(21.3%)

Occupation

Trading was the most common occupation of the patients {(females 42 or 42.6%) and males (37 or 31.9%)} (Table 1) There was a significant association between gender and occupation ($X^2 = 33.692$, $p < 0.001$).

Educational Status

Thirty-eight (38.8%) of females had primary education compared with 17(36.1%) of males (Table 1). These differences were not statistically significant ($X^2 = 1.599$, $p > 0.05$).

Mode of Transmission

Heterosexual contact with multiple sex partners was the most common mode of transmission in female (42 or 42.9%) and male (35 or 74.5%) patients. Also in a higher proportion of females (20 or 20.4%), the mode of transmission was unknown (Table 2) These differences were statistically significant ($X^2 = 12.252$, $p < 0.05$).

Table 2: Mode of Transmission of infection

Mode	Female (%)	Male (%)
Heterosexual contact with multiple partners	42(42.9%)	35(74.5%)
Heterosexual contact with single partner	33(33.7%)	6 (12.8%)
Blood transfusion	2(2.0%)	-
Non-sterile instrumentation	1(1.0%)	1(2.1%)
Unknown	20(20.4%)	5(10.6%)
Total	98(100%)	47(100%)

Table 3: Distribution of general manifestations of HIV infection

Manifestation	Female (%)	Male (%)
Weight loss	41(41.8%)	23(48.9%)
Fever	39(39.8%)	23(48.9%)
Cough	31(31.6%)	7(14.9%)
Skin rashes	15(15.3%)	9(19.1%)
Pulmonary tuberculosis	3(3.1%)	-
Diarrhoea	-	23(48.9%)
Anorexia	8(%)	3(%)
Dyspnoea	6(6.1%)	3(6.4%)
Vomiting	3(3.1%)	2(4.3%)
Chest pain	2(2.0%)	1(2.1%)

General Manifestations

The most common medical findings among female patients were weight loss 41(41.8%), fever 39(39.8%), cough 31(31.6%) and skin rashes 15(15.3%). Forty-two (42.9%) patients had more than one general manifestation. Among males the most common findings were weight loss 23(48.9%), fever 23(48.9%), diarrhoea 23(48.9%), skin rashes 9(19.1) cough 7(14.9). A further 9(19.1%) were asymptomatic. More than one medical finding was seen in 38(80.9%) patients (Table 3)

Oro-Facial Manifestations

The chi-square test showed non-significant differences between oro-facial manifestations of HIV and educational level (males: $X^2 = 26.356$, $p > 0.05$; females: $X^2 = 38.025$, $p > 0.05$), as well as between oro-facial manifestations and occupation (males: $X^2 = 76.490$, $p > 0.05$; females: $X^2 = 125.937$, $p > 0.05$). However, a statistically significant difference was observed between oro-facial manifestations and mode of transmission

of HIV amongst females ($X^2 = 64.203$, $p < 0.05$) but not amongst males ($X^2 = 16.847$, $p > 0.05$). Table 4 showed the spectrum of oro-facial manifestations of HIV infection by gender. Candidiasis in its various forms was the most common oral finding in females 77(78.6%) and males 37(78.7%). There was no significant association between the oral manifestations of HIV infection and gender ($X^2 = 26.045$, $p > 0.05$). Three (3.1%) females and 12(25.5%) males had more than 1 oral manifestation.

Discussion

It would appear that the prevalence of HIV-related oral diseases have not been extensively documented among females.¹² In this study, females comprised most (67.6%) of HIV positive (HIV+) patients with oral manifestations. This is consistent with several reports.^{13,17-19} However, some studies have shown a higher prevalence among males.²⁰⁻²² The reason for this gender difference in presentation is not immediately apparent but may be related to the fact that women react to health promotion more positively and for many oral conditions, women

come forward for treatment much more frequently.¹¹ The mean age of the patients in this study is similar to reports in the literature.^{12,13,17} However, women were infected much earlier (19 years vs. 26 years for males) while males were infected more into old age (70 years vs. 60 years for females). This is probably because girls are more likely to engage in sexual activity (the most common mode of transmission of HIV infection in this study) much earlier than boys. Younger females are also more likely to consort with older men who in turn are more likely to be HIV+. Most of the patients in this study were married (46.9% for females and 83.0% for males). This is consistent with the report by Garcia- Vazquez, *et. al.*²³ The patients in this study were engaged in a diverse range of occupation which ordinarily did not confer a high risk for HIV infection. Several reports have shown a similar trend.²⁴⁻²⁶ For both gender there were more patients with primary and secondary education than those that attained tertiary level education ($p > 0.05$). Many studies on HIV infection and literacy levels have shown a high prevalence among the less educated.²⁷⁻²⁹ However, some studies have also shown that the social elite is increasingly affected.^{30,31}

Table 4: Distribution of oro-facial manifestations of HIV infection by gender

Oral manifestations	Females (%)	Males (%)
1. Candidiasis		
a. Thrush (Pseudomembraneous candidiasis)	63(64.3%)	28(59.6%)
b. Erythematous candidiasis	6(6.1%)	5(10.6%)
c. Chronic hyperplastic	3(3.1%)	4(8.5%)
d. Angular cheilitis	5(5.1%)	—
e. Chronic atrophic	—	2(4.3%)
2. Oral ulcers	5(5.1%)	3(6.4%)
3. Kaposi's sarcoma	3(3.1%)	—
4. Hairy leukoplakia	—	3(6.4%)
5. Herpetic infection	2(2.0%)	4(8.5%)
6. Linear gingival erythema	3(3.1%)	3(6.4%)
7. Xerostomia	3(3.1%)	1(2.1%)
8. Bilateral parotid gland swelling	1(1.0%)	—
9. Hyperpigmentation	1(1.0%)	2(4.3%)
10. Gingival bleeding	1(1.0%)	—
11. Trigeminal neuralgia	—	1(2.1%)
12. Facial palsy	—	1(2.1%)
13. Cervical lymphadenopathy	5(5.1%)	2(4.3%)

Heterosexual intercourse with multiple sex partners was the dominant mode of transmission among the patients in this study. This is consistent with the finding that in sub-Saharan Africa heterosexual contact was most common mode of transmission of HIV.^{19,32} This study did not encounter homosexual contact or intravenous drug use more common in highly industrialised countries.³³⁻³⁵ This study also encountered a low incidence of patients infected through blood transfusions and the use of non-sterile surgical instruments although this may have a relationship with the high number of patients who did not know how they got infected. The mode of transmission of HIV may have a bearing on the prevalence of oral manifestations.³⁵

Apart from 9(19.1%) males in this study, most patients had developed at least one medical condition attributable to HIV infection, suggesting disease progression.⁷ Although some oral diseases and conditions have a weak association with HIV infection, others are strongly associated with the disease, and a few are acquired immune deficiency syndrome (AIDS) defining in nature.⁷

In this study, there were no significant differences in the occurrence of oral manifestations of HIV infection in either gender ($p > 0.05$). This differs from the report of Khongkuntian, *et. al.*,¹³ which found that men were significantly more affected by oral manifestations than women.

Candidiasis was the most common oral condition observed in both gender in this study. This is consistent with many reports.^{13,14,17-19} As with these reports^{13,14,17-19} thrush (pseudomembranous candidiasis) was the most common variety seen. The association of oral candidiasis with HIV infection was recognized very early in the HIV/AIDS pandemic.⁶ The different forms of candidiasis carry different prognostic significance. For example, erythematous candidiasis is a less powerful predictor of advanced HIV disease than thrush (pseudomembranous candidiasis).³⁶ Non-significant differences ($p > 0.05$)

were seen in the occurrence of candidiasis amongst females and males.

The appearance of aphthous like ulcers is one of the clinical markers for HIV infection.³⁷ The aetiology of oral ulcers include lymphoma, herpes simplex, histoplasmosis and herpes zoster infections.^{38,39} More oral ulcers were seen in females than in males ($p < 0.05$). Kaposi's sarcoma was the only malignancy recorded in this study. It is the most common oral malignancy associated with HIV infection and it accounts for 90% of all cancers in HIV+ patients.^{37,40} Although a study¹⁴ has found that the prevalence of Kaposi's sarcoma was significantly less common in women, the only cases of Kaposi's sarcoma seen in this study occurred in females ($p > 0.05$). Kaposi's sarcoma is significantly associated with death in HIV disease.⁴¹

Herpetic infection was seen as herpetic stomatitis and herpes zoster, affecting more males than females ($p > 0.05$). Infection with the herpes zoster virus is neither a marker of deteriorating immune function⁴² nor is it significantly associated with death.⁴¹ Hairy leukoplakia appears as corrugated or velvety (hairy) white plaques on the lateral borders of the tongue.⁴³ As is consistent with other reports, this study found that only males ($p > 0.05$) presented with leukoplakia.⁴³⁻⁴⁵ However, Muzyka *et. al.*,⁴⁶ found hairy leukoplakia in 5.8% of women who were HIV-1 positive. Periodontal disease occurs in the range of 2.8%-33% in HIV infection.³⁰ In this study, linear gingival erythema was seen in 3.1% of females and 6.4 % of males. Arendorf *et al*⁴⁷ found combined gingival and periodontal lesions in 8.5% of their study population. The more severe necrotizing gingivitis and necrotizing ulcerative periodontitis were not seen in this study. Schdiot⁴⁸ also reported similar findings. Salivary gland disease in HIV infection can occur as xerostomia or as glandular enlargement.⁴⁹ Xerostomia may be seen in 10-15% of patients with HIV infection. This is usually the result of HIV gland disease or secondary to medications

which may produce dry mouth symptoms.⁴⁹ The cervical lymphadenopathy seen in HIV infection is a part of the generalized lymphadenopathy and could be the most prevalent oro-facial manifestation.⁴⁹ The peripheral nervous system is frequently involved in HIV infection^{50,51} In this study, trigeminal neuralgia and facial palsy were seen in 1% of males. They usually represent early onset symptoms and late involvement may suggest severe immunodeficiency or tumours involving the central nervous system.^{51,52}

In conclusion, this study showed that similar demographic and clinical characteristics were observed in the occurrence of oral manifestations of HIV infection in both male and female Nigerians. These findings are also comparable to those documented in the literature.

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