

Original Research

Oral health related quality of life in HIV patients

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ABSTRACT:

Background: HIV patients having severe immunosuppression and poor oral hygiene have an impact on an individual's quality of life and well-being. **Aim:** To evaluate oral health related quality of life in patients with HIV. **Material and Methods:** Total 90 HIV infected patients on antiretroviral therapy taken using simple random sampling and questionnaire used was OHIP-14. **Results:** Patient with HIV having more difficulty in doing usual job and unable to work to full capacity and their life in general is less satisfying. **Conclusion:** It was concluded that OHIP-14 was significantly associated with Age and Gender of HIV Patients. Handicap and Psychological discomfort and psychological disability ranked the highest domains among HIV Subjects. The presence of oral symptoms was significantly associated with more severe oral impacts and poorer OHRQoL.

Keywords: Antiretroviral treatment, HIV, Oral health related quality of life, Oral health impact profile-14, OHIP-14

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INTRODUCTION

One of the world's major public health issues is HIV infection. Acquired immunodeficiency syndrome (AIDS) is a complex symptoms and infections caused by HIV as it impacts immune system. Global AIDS-related deaths have reduced due to use of highly active antiretroviral therapy (HAART).^[1] The vast devastating impact of HIV/AIDS are not limited to individual patient but also affects family, community and the nation. The disease robs a country of its monetary resources in covering for the costs of HIV prevention and treatment, also of the nation's human resources when young productive lives are affected.^[2]

In patients with HIV infection oral lesions are common and up to 75% of individuals with HIV will develop at least one oral manifestation during the

course of the illness. Several studies have demonstrated that 40–50% of HIV-positive individuals have fungal, bacterial or viral infections in the oral cavity.^[2] Oral manifestations such as oral candidiasis have been documented as early clinical features of the HIV infection, and may indicate the decline of the immune system and predict disease progress.^[3]

Direct and indirect oral symptoms related with HIV infection such as pain and discomfort may adversely affect food selection, leading to inadequate diet and subsequent poor nutrition, which in turn may further weaken their already compromised immune status. This increases the patients' susceptibility to various opportunistic infections including oral candidiasis which may further reduce the patients' ability to eat, leading to more rapid disease progress and worsening of oral and general health.^[3] These oral lesions have

physical, economic, social, and psychological effects on the individuals leading to impairment of the oral health-related quality of life (OHRQoL).^[2] Several knowledge attitude and practice studies have been carried out worldwide in relation to HIV/AIDS transmission and infection, while many literatures addressed the OHRQoL among of People Living With HIV and AIDS (PLWHA).^[2] The aim of the study was to assess OHRQoL among HIV positive patients on antiretroviral treatment.

MATERIALS AND METHODS

Present study was performed on patients at OPD of ART center of General Hospital, Amreli, Gujarat for 2 years. Before conducting study, research proposal was submitted to institutional ethics committee and permission to conduct the study was obtained. Total 90 patients taken for the study who were agreed to participate and met the criteria. All procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation and with the Helsinki Declaration of 1964 and later versions.

Sample size estimation was done using formula $n = n = (z^2 * \sigma^2) / ME^2$ (where n = sample size, ME = margin of error, $\sigma = 1$ – confidence interval, Z = critical standard score). Sampling was done using simple random sampling. According sample size formula final sample size calculated was 90.

INCLUSION CRITERIA

Patients having HIV and on ART

EXCLUSION CRITERIA

1. Patients who are not willing to participate in the study.
2. Patients below 18 years and/or mentally compromised.

DATA COLLECTION

After written informed consent was taken from participant, thorough history was taken and all patients were examined by using mouth mirror and probe under artificial light taking universal precaution. Data were collected in a specially designed proforma.

RESULTS

Total of 90 patients participated in the study with age range from 21 to 65 years. Distribution of the patients according to age done in five groups i.e., 21-30, 31-40, 41-50, 51-60 and more than 60 years. Highest numbers of participants (30) were in age range of 31-40 years. [Table 1] Out of 90 patients, 57 were males and 33 were females. [Table 2]

Table 1: Distribution of the patients according to Age

Age	Number	Percentage
21-30	10	11.1
31-40	37	41.1
41-50	30	33.3
51-60	11	12.2
More than 60	2	2.2

RESEARCH TOOL

The Oral Health Impact Profile (OHIP), developed by Slade and Spencer, is one of the most widely used instruments to assess the impact of oral diseases on life experiences or oral health-related quality of life (OHRQoL).^[4] The purpose of OHIP is to provide a measure of the social impact of oral disorders and draws on a theoretical hierarchy of oral health outcomes. The questionnaire was translated from English to Gujarati language by the examiner. The questionnaire contained seven different dimensions (functional limitations, physical pain, psychological discomfort, physical disability, psychological disability, social disability, and handicap). All these dimensions contained two questions each which define the OHRQoL.^[2] A 5-point Likert scale was used to assess the frequency of oral impacts and coded as '0' for 'never', '1' for 'hardly ever', '2' for 'occasionally', '3' for 'fairly often' and '4' for 'very often'. The total score of all 14 items (range: 0 to 56) was calculated to determine the overall severity of the impact, as a reflection of functional status. A higher OHIP score indicates greater oral impact, and a poorer OHRQoL.^[3]

Additionally, a structured self-administered questionnaire was developed to determine individual characteristics like age, sex, marital status, ART status and duration and oral lesions.

RELIABILITY AND VALIDITY OF THE QUESTIONNAIRE

For internal reliability, standardized alpha coefficient was estimated. Cronbach's coefficient was found to be 0.85. The first 10% of respondents who were interviewed and examined were again contacted after a week and subjected to the same procedure. For criterion and validity, Face validity was also assessed, and it was observed that 92% of the participants found the questionnaire to be easy.

STATISTICAL ANALYSIS

The recorded data was compiled and entered in a spreadsheet computer program (Microsoft Excel 2007) and then exported to data editor page of SPSS version 15 (SPSS Inc., Chicago, Illinois, USA). For all tests, confidence level and level of significance were set at 95% and 5% respectively. Data were comparing using student t test.

Table 2: Distribution of the patients according to Gender

Gender	Number	Percentage
Male	57	63.3
Female	33	36.7

According to marital status of individuals, they categorized into married, unmarried, widow and divorced. Among which majority of the study participants were married. [Table 3]

Table 3: Distribution of the patients according to marital status

Marital Status	Number	Percentage
Married	63	70
Unmarried	12	13.3
Widow	13	14.4
Divorced	2	2.2

The distributions of the mean scores and standard deviations for each of the indicators of OHIP-14 are shown in Table 4.

Table 4: Descriptive statistics of the OHIP-14 items

Question	Number	Mean±SD
1. Trouble in pronouncing words?	90	0.14±0.50
2. Have you felt that your sense of taste has worsened?	90	0.32±0.70
3. Have you had sensitive teeth with hot or cold food or drinks?	90	0.88±0.99
4. Have you had painful gums?	90	0.94±1.02
5. Have you been worried by dental problems?	90	0.85±1.03
6. Have you felt uncomfortable about appearance?	90	0.31±0.71
7. Have you been avoided smiling?	90	0.22±0.61
8. Have you had an unsatisfactory diet?	90	0.73±1.11
9. Have you been found that your sleep has been interrupted?	90	0.35±0.85
10. Have you felt depressed?	90	0.93±1.21
11. Have you had difficulty in doing usual job?	90	1.31±1.35
12. Have you had trouble getting on with other people?	90	0.51±1.07
13. Have you felt that life in general was less satisfying?	90	1.53±1.41
14. Have you been unable to work to full capacity?	90	2.33±1.38

As can be seen, some of the items show a higher mean score than others. Higher the mean score means a greater number of patients having higher score regarding particular question. For example, question no 11: Have you had difficulty in doing usual job? question no 13: Have you felt that life in general was less satisfying? question no 14: Have you been unable to work to full capacity? It shows a greater number of patients having higher score towards all these questions.

Both age and gender show significant ($p \leq 0.05$) relationship with OHRQoL, the variation in OHRQoL in HIV patients in different age and gender groups can be observed [Table 5&6].

Table 5: The variation in quality of life in HIV patients in different age groups

Variables	Number	OHIP Mean±SD	P value
Age			
21-30	10	10.0±6.2	0.05*
31-40	36	11.52± 7.47	
41-50	30	14.03±8.95	
51-60	11	7.72±6.69	
More than 60	2	10.0±1.41	

* indicates statistically significance at $p \leq 0.05$

Table 6: the variation in quality of life in HIV patients in different Gender

Gender			
Male	57	10.56±7.09	0.001*
Female	33	13.07±7.53	

* indicates statistically significance at $p \leq 0.05$

We also observed that 31-40 age group had significantly higher mean scores of OHIP-14 in HIV patients in comparison to other age groups and male shows significantly higher number of mean scores in comparison to female ($p=0.001$).

DISCUSSION

Acquired immune deficiency syndrome (AIDS) is caused by the human immunodeficiency virus (HIV) and is highly lethal.^[5] More than 38 million people had HIV infections across the globe. India is the third largest country in the world in HIV- infected patients.^[6] It is a critical disorder which severely damages the body's normal defense to infections by reducing immunity thereby making the host vulnerable to life threatening infections and conditions including malignancies.^[7] Reduction in number of new HIV infections because of the lower likelihood of HIV transmission per exposure and substantial decreases in the incidence of AIDS-defining events and AIDS-related morbidity due to sustained viral suppression and subsequent reduction of viral load in the blood and other bodily fluids. The number of new HIV infections each year is still high, and the improved survival time means there is a persistent increase in the number of chronic HIV patients.^[1]

Oral manifestations are most early and important indicators of HIV infection. Oral lesions can have a significant impact on health-related quality of life. Oral health has strong association with physical and mental health. In PLWHA, oral health needs have increased significantly.^[8]

Oral lesions in HIV may cause pain, discomfort, altered taste and burning sensation which may interfere with the chewing of food, pronunciation of certain words and sounds, and smiling and socializing with confidence. One of the most widely used instruments to assess the impact of oral diseases on life experiences or oral health-related quality of life (OHRQOL) is Oral Health Impact Profile (OHIP), developed by Slade and Spencer which is based on the conceptual model for measuring oral health proposed by Locker.^[4,9]

The aim of this OHIP is to provide a comprehensive measure of self-reported dysfunction, discomfort, and disability arising from oral conditions. Social stigma and economical status lead the sufferer and his family in extreme poverty. The social impact of oral health problems and oral manifestations of HIV recognized as an important attribute used to assess the outcomes of oral health services, to assist in cost-benefit analysis, and to monitor individual patient care.^[2]

OHRQoL is a multidimensional construct that includes a subjective evaluation of the individual's oral health, functional well-being, emotional

wellbeing, expectations and satisfaction with care, and sense of self. OHRQoL is an integral part of general health and well-being. OHRQoL can be useful in measuring the impact of oral health disparities on overall health and Quality of Life.^[10]

Kumar S et al. showed in their study that HIV positive have poor oral health status compared to HIV negative individuals.^[11]

Another study done by Agarwal H et al. in Nepal had almost similar result which showed that HIV positive individuals had lower QoL score than control in all domains like physical, psychological, social and environmental.^[12]

Miners A et al showed in their study that people living with HIV have significantly lower HRQoL than do the general population, despite most HIV positive individuals in their study being virologically and immunologically stable.^[13]

Research has found that certain groups are at greater risk for low OHRQoL. Research has revealed that certain medical, dental, and emotional conditions are also associated with low OHRQoL. For example, women with HIV individuals with dental anxiety/fear have lower OHRQoL compared with the general population.^[14,15] There appears to be a consistent association between clinical variables and OHRQoL across age groups.^[16,17]

Various factors associated with the symptoms/functional well-being/oral health sector of the theoretical model have been found to affect OHRQoL. For example, chewing ability has been found to affect the OHRQoL of the elderly.^[17]

Researchers studying oral health problems have used OHRQoL as an outcome measure to determine the effect of treatment on QoL. Awadet *al.* found that, compared with the use of conventional dentures, mandibular implant overdentures significantly improved OHRQoL for patients with edentulism in the short term.^[18]

In a meta-analysis with 42,366 patients, from 111 studies, the prevalence of depressive symptoms ranged from 12.8 to 78.0% in HIV/AIDS patients using ART.^[19]

Study done by Mohamed et al. showed that the most affected oral health domain was psychological discomfort. Also, impact of oral disease is greater for PLWHA and oral symptoms show poorer OHRQoL.^[1] A comparison study done by Liberali SA showed that HIV positive patients have improved OHRQoL after

HAART introduction and HIV-positive patients still have significant oral health needs.^[20]

Our results have similarity with study done by Anup N et al. showed higher Mean in patient with unsatisfactory diet, in patients with difficulty in doing usual jobs, and was found in patients with unable to work to full capacity.^[21]

Saddaki N et al. showed that oral and general health has direct correlation and severity of disease has direct impact on QoL and severity of impact was higher among female.^[3] Bajomo AS et al. showed in their study that women have poorer OHRQoL which has similar result with our study as mean was higher among female in our study.^[21]

Assessment of OHRQoL allows for a shift from traditional medical/dental standards of assessment and treatment that focus on a person's social and emotional experience and physical functioning to aid in appropriate treatment goals and outcomes.^[22]

CONCLUSION

It was concluded that OHIP-14 was significantly associated with Age and Gender of Hiv Patients. Handicap and Psychological discomfort and psychological disability ranked the highest domains among HIV Subjects. The presence of oral symptoms was significantly associated with more severe oral impacts and poorer OHRQOL. Patients who have severe oral manifestations have functional limitations, emotional and social well-being related to oral health. Oral health care professionals are able to diagnose HIV related oral lesions and recognize their significant role in its management and prevention also. So dentist's active role in management of HIV patients can lead to good balance between oral and general health which ultimately improve OHRQoL of such patients.

STUDY LIMITATIONS AND PROSPECTS

All of our participants attended follow-up care at the hospital, and were therefore mostly in relatively good physical condition. Thus, our results cannot be applied to all PLWHA, such as those who are inpatients, those at home and unable to come to the ART center, and those not receiving medical care. Further large research studies with larger sample size and a long-term assessment in the form of a longitudinal study are needed involving government and private hospitals to know the actual estimate the prevalence of OHRQoL in HIV patients. Considering these factors and the fact that this was a preliminary study done on a small scale, we cannot generalize these results to other communities.

Declaration of patient consent: The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to

conceal their identity, but anonymity cannot be guaranteed

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CONFLICTS OF INTEREST

There are no conflicts of interest.

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