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EVALUATION OF ORAL HEALTH RELATED QUALITY OF LIFE OF TUBERCULOSIS PATIENTS IN VADODARA- A QUESTIONNAIRE STUDY

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ABSTRACT:

Introduction: Tuberculosis is a chronic granulomatous disease that affects various systems of the body. India accounts for nearly one-third of the global burden of tuberculosis. Primary oral tuberculosis is extremely rare, and generally occurs in young adults. It usually involves the gingiva as a painless lesion. However any increase in incidence of periodontal disease associated with tuberculosis must be produced by local factors of which poor oral hygiene appears to be the most significant. Chronic tuberculosis has been considered predisposing or contributing factor in the development of periodontal disease. So this study was designed to use Hindi version of OHIP-14 (Oral Health Impact Profile), to determine the impact of tuberculosis on everyday life and to measure oral health related quality of life in Indian population.

Materials and methods: This study involved 100 patients of tuberculosis admitted in Dhiraj Hospital, Vadodara interviewed using the OHIP-14 questionnaire. All of them were provided with a printed questionnaire and were asked to fill the forms. These forms were collected as soon as they completed answering all questions.

Results: The result of this study shows amongst 100 tuberculosis patients of Vadodara that average 50% patients were having occasional problems such as functional limitation, physical pain, psychological discomfort, physical disability, psychological disability, social disability and handicap because of problems related with their teeth, mouth or denture.

Conclusion: Thus we can conclude from this study that the oral health-related quality of life (OHRQOL) was occasionally affected in tuberculosis patients. Systemic diseases like tuberculosis have occasional problems with periodontal health and diseases.

Keywords: OHIP-14, Periodontal disease, Tuberculosis, Oral health-related quality of life.

INTRODUCTION

Tuberculosis (TB) has a long history. Its causative agent, Mycobacterium tuberculosis, may have killed more persons than any other microbial pathogen. Tuberculosis describes an infectious disease that has plagued humans since the Neolithic times. Physicians in ancient Greece called this illness “phthisis” to reflect its wasting character. Tuberculosis remains the leading cause of death worldwide. The vulnerability to tuberculosis in developing countries results from poverty, economic recession and malnutrition. Tuberculosis is a chronic granulomatous disease that affects various systems of the body. India accounts for nearly one-third of the global burden of tuberculosis. Every year, approximately 2.2 million persons develop tuberculosis, of which about one million are new-smear positive highly infective cases and about five lacks people die of tuberculosis every year.[1,2] Although extra pulmonary tuberculosis is rare, occurring in 10-15% of all the cases, it can affect any part of the body, including the oral cavity.[3] Primary oral tuberculosis is extremely rare, and generally occurs in young adults. It usually involves the gingiva as a painless lesion.[4] Secondary oral tuberculosis, on the other hand, is common and is usually seen in older adults, involving the tongue, palate, lips, buccal mucosa and gingiva.[5] But, as the incidence of tuberculosis in our country is quite high, all atypical manifestations of tuberculosis are likely to be seen occasionally. There are few recorded cases of gingival tuberculosis in the literature. The clinical presentation of tuberculosis may take many forms.[1,2] Extrapulmonary tuberculosis, like tuberculosis of periodontal tissue, is an uncommon condition. Even in our country where tuberculosis is very common, involvement of periodontal tissue with tuberculosis has probably been reported very rarely. Oral tuberculosis is usually post-primary and occurs in patients affected with advanced pulmonary tuberculosis. Oral tuberculous lesions appear in the form of nodules, ulcers or elevated fissures. The sites most frequently affected are the tongue, hard and soft palate, tonsils and pharynx. It may

occur in the buccal mucosa, gingival and at the commissars of the lips.[6,7] The reason for its rare occurrence in the oral cavity may be intact epithelium resisting direct penetration by bacteria.[8] This resistance may also be attributed to the thickness of the oral epithelium and protective action of saliva.[9] Thus, it has been suggested that organisms enter the oral mucosa through a small breach on the surface or any local trauma.[10] The organism is likely to be carried to the oral tissue by the hematogenous route.[11] However any increase in incidence of periodontal disease associated with tuberculosis must be produced by local factors of which poor oral hygiene appears to be the most significant. Chronic tuberculosis, have been considered predisposing or contributing factors in the development of periodontal disease. Sometimes periodontal lesions associated with these systemic diseases are characteristic enough to be helpful in arriving at a diagnosis of the systemic disease.

Oral Health-related Quality of Life (OHRQoL) has been defined as "the absence of negative impacts of oral conditions on social life and a positive sense of dentofacial self-confidence". Theoretical models characterize OHRQoL as multidimensional, including physical, psychological and social dimensions. In this context, the term dimension is defined as "items that measure the same construct" Among the various OHRQoL instruments, the Oral Health Impact Profile (OHIP) was developed with the aim of providing a comprehensive measure of self-reported dysfunction, discomfort and disability attributed to the oral condition The original OHIP contains 49 questions grouped in seven dimensions based on Locker's model of oral health, which was adapted from the World Health Organization's International Classification of Impairments, Disabilities, and handicaps. The OHIP-14 was developed as a shorter version of the OHIP-49. This instrument is one of the most widely used OHRQoL indicators internationally, is available in several languages (including Portuguese, Chinese, French, German, Japanese, Malaysian, Spanish, Somalian and Hindi) and has been shown to have face and content validity for different populations.

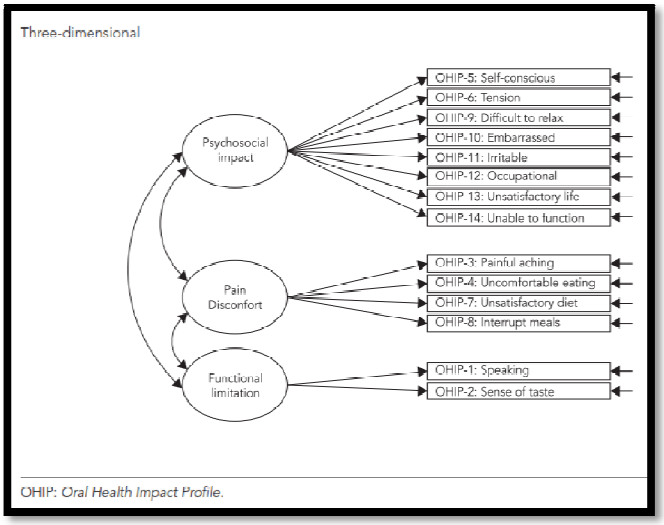

Figure 1. Three dimensional division of OHIP -14 questions.

There are many studies done on oral health related quality of life in various conditions using OHIP-14(Oral Health Impact Profile), but none using Hindi version of OHIP-14 in tuberculosis patients. So this study was designed to use Hindi version of OHIP-14 (Oral Health Impact Profile),[12] to determine the impact of tuberculosis on everyday life and to measure oral health related quality of life in Indian population. As Hindi version of OHIP-14 was a valid and reliable tool, it was used to check oral health related quality of life in tuberculosis patient in Vadodara city. The purpose of this questionnaire survey was to evaluate oral health related quality of life in tuberculosis patient with the help of Hindi version of short-form Oral Health Impact Profile (OHIP-14) among the tuberculosis patients. Oral health related quality of life of tuberculosis patient was assessed with help of 14 questions which helped to find out various periodontal problems they are facing in day to day life.

MATERIALS AND METHODOLOGY

The study was conducted in Dhiraj hospital, Sumandeep Vidyapeeth, Vadodara city. Patients who were diagnosed and admitted for treatment of tuberculosis in Dhiraj Hospital, Sumandeep Vidyapeeth University were enrolled in the study.

Based on the Hindi translation of OHIP-14 by Deshpande NC, Nawathe AA (2014),[12] the minimum sample size required for this study was 100 participants to achieve 80% power with significance level (alpha) of 0.05 using a two-sided one-sample t-test.

Inclusion Criteria:

The patients suffering from tuberculosis. Patient who spoke and understood Hindi language. Patients above 18 years of age. Patients willing to participate in the study.

Exclusion Criteria:

Physically or mentally challenged patients. Patients not willing for participation. Patients with other systemic

diseases.

By taking into consideration of inclusion and exclusion criteria, total 100 patients who were diagnosed and admitted for treatment of tuberculosis in Dhiraj Hospital, Sumandeep Vidyapeeth, Vadodara city were included in this study. The oral health-related quality of life (OHRQOL) was evaluated by means of the Hindi version of Oral Health Impact Profile (OHIP-14). This questionnaire measured perceived oral health related quality of life of tuberculosis patients by asking 14 questions that comprised the OHIP-14 questionnaire. All the patients were informed about the study and were asked to complete a questionnaire in accordance with the norms and guidelines previously established for the study by the ethics committee. All the record keeping along with obtaining consent form was done by primary investigator for all patients who were included in the study. For the qualitative analysis of self-perceived oral health in patients with Tuberculosis, we used the Hindi version of the OHIP-14 questionnaire. The OHIP-14 Hindi version comprised of 14 questions, each with five response categories corresponding to a 5-point Likert scale where 0 is "*never*" suffered problems or pain, and 4 is "*very often*". The OHIP-14 score is obtained directly from the sum of the results of each of its 14 items (OHIP-14 $=\sum v1+v2+...+v14$).

Frequency analysis was done on the basis of answers given from the scale of 0 to 4.

RESULTS

Table 1 shows frequency of the Tuberculosis patient's answers to the OHIP 14 questionnaire concerning oral health related quality of life. In which 31% patients had occasionally and 41% had hardly ever faced problems to pronounce the words, whereas 13% patients had fairly often and 16% had very often problems to pronounce the words because of the problems related with their teeth. 40% patients hardly ever felt that their sense of taste was worsened because of problems with teeth, mouth or denture. 31% had occasional and 16% had fairly often problems with their sense of taste. 13% patients had very often problems with their sense of taste. 6% patient had hardly ever felt severe pain in mouth whereas 58% patients had occasional severe pain. 31% patients had fairly often severe pain and 5% had very often severe pain. 2% patients hardly ever felt that they were uncomfortable to eat any food because of problems with teeth, mouth or denture. 83% had occasional and 14% had fairly often discomfort with eating any food. Only 1% patients had very often discomfort to eat any food because of problems with teeth, mouth or denture. 73% patients were occasionally self conscious because of problems related with teeth, mouth or denture. 26% patients were fairly often self conscious and 1% were very often self conscious because of the problems related with his teeth, mouth and denture. 3% patients were hardly ever tensed because of problems with their teeth, mouth or denture. 64% patients were occasionally and 31% were fairly often tensed. Only 2% were often tensed because of problems related with teeth, mouth or denture. 8% patients hardly ever had unsatisfactory diet, whereas 49% occasionally and 29% had fairly often problems with the diet. 14% patient had very often unsatisfactory diet because of problems with their teeth, mouth or denture. 47% patients hardly ever had to interrupt meals because of problems related with teeth, mouth or denture, whereas 53% patients occasionally had to interrupt meals because of problems related with teeth. mouth and denture. 45% patients hardly ever had difficulty to relax. 33% patients had occasional difficulties to relax, whereas 19% patients had fairly often difficulties to relax. 3% patient had very often difficulty to relax because of problems with their teeth, mouth or denture. 50% patients were occasionally embarrassed because of their problems with teeth, mouth or denture, whereas 48% patients were fairly often and 2% patients were very often embarrassed because of problems with their teeth, mouth or denture. 5% found that they were hardly ever irritated with other people because of their own problems with teeth, mouth or denture, whereas 67% patients were occasionally irritated in their behaviour with the others. 28% were fairly often a bit irritable with other people because of their problems with teeth, mouth or denture. 76% had hardly ever difficulty doing their usual jobs because of problems with teeth, mouth or dentures, whereas 12% occasionally had difficulty doing their usual jobs. 66% patients found that their life was hardly ever unsatisfactory because of the problems with teeth, mouth or denture. 34% patients occasionally felt that their life was bit unsatisfactory because of the problems with teeth, mouth or denture. 40% patients were hardly ever totally unable to function because of problems with their teeth, mouth or dentures, whereas 52% patients occasionally found themselves totally unable to function because of problems with their teeth, mouth or dentures. 8% patients had fairly often loss of function because of problems related with their teeth, mouth or denture.

DISCUSSION

The OHIP-14 comprises 14 items that explore various dimensions of impact: functional limitation, physical pain, psychological discomfort, physical disability, psychological disability, social disability and handicap (figure 2).

Figure 2: Dimension comparing oral health related quality of life

Common dimensions in OHRQoL instruments are given in Fig. 2, along with specific examples of items associated with each dimension. While traditional factors like oral health symptoms are illustrated in this figure, factors such as social and emotional well-being incorporate positive health states such as happiness and confidence. Recent OHRQoL instruments, like the Child Oral Health Impact Profile, attempt to identify the impact of treatment (*e.g.*, satisfaction) along with the positive influence of oral health and the appearance of the face and teeth on overall health and well-being among patients and the non treatment seeking individuals. Positive health attributes have also been incorporated into measures with youth, adults, and older persons. In short, OHRQoL assesses positive and negative dimensions across the life course.

The concept of health status embraces the biopsychosocial model of health into which symptoms, physical functioning, and emotional and social well-being are incorporated. Quality of life, or individuals' "perceptions of their position in life in the context of culture and value systems in which they live, and in relation to their goals, expectations, standards, and concerns" is now recognized as a valid parameter in patient assessment in nearly every area of physical and mental healthcare, including oral health. The subjective evaluation of OHRQoL "reflects people's comfort when eating, sleeping and engaging in social interaction; their self esteem; and their satisfaction with respect to their oral health."

According to ***Locker et al., 2005*** [16] and ***Atchison et al., 2006*** [17] it is the result of an interaction between and among oral health conditions, social and contextual factors and the rest of the body. According to ***Christie et al., 1993*** [15] assessment of OHRQoL allows for a shift from traditional medical or dental criteria to assessment and care that focus on a person's social and emotional experience and physical functioning in defining appropriate treatment goals and outcomes. Researchers studying oral health problems have used OHRQoL as an outcome measure to determine the effect of treatment on quality of life. ***Awad et al. 2000*** [18] found that, compared with the use of conventional dentures, mandibular implant overdentures significantly improved OHRQoL for patients with edentulism in the short term. According to ***de Oliveira and Sheiham, 2004*** [19] Brazilian adolescents who had orthodontic treatment had better OHRQoL than their non-treatment counterparts. A study done by ***Hyde et al., 2006*** [20] in San Francisco found that rehabilitative dental treatment improved welfare recipients OHRQoL and employment outcomes.

OHIP-14 questions 1 and 2 denote functional limitation that is mainly speaking disability and disturbed taste sensation. In the present study 31 % to 54% patients were facing the problems occasionally, whereas 16% to 32% patients were having functional disability fairly often. It suggests that most of the patients were having functional limitations. Questions 3,4,7 and 8 denote the painful discomfort mainly painful aching, discomfort while eating, unsatisfactory diet and interrupted meal. All of them mostly involved occasionally. It suggests that most of the patients were having pain occasionally due to their problems with teeth, denture and mouth. Questions 5,6,9,10,11,12,13, and 14 are related with psychosocial impact due to their problems with teeth, mouth or denture. Occasional involment of psychological disturbance was noted because of the problems related with their teeth, denture and mouth. Overall, because of the problems related with the teeth, denture or mouth, the oral health related quality of life was occasionally affected in tuberculosis patients in Vadodara city. This study may not provide the direct evidence for association between oral health related problems and tuberculosis but can indicate that in tuberculosis patients oral health related quality of life was affected. Further studies in this direction can be carried out to check the oral health related problems in tuberculosis patients and its impact on the quality of life.

Table 1 : Frequency analysis of the tuberculosis patients answers to the OHIP 14 questionnaire concerning oral health related quality of life.

प्रश्नावली	कभी नहीं (0)	शायदही कभी (1)	कभी कभी (2)	अक्सर (3)	बहुत बार (4)
1.क्या आपको अपने दाँत, मुँह, या बत्तिस की समस्याओं की वजह से शब्द उच्चारण मै परेशानी होती है?	0%	6%	54%	32%	8%
2. क्या आपको अपने दाँत मुँह, या बत्तिसि की समस्याओं की वजह से लगा कि आपका स्वाद का अहेसास खराब हो गया है?	0%	40%	31%	16%	13%
3.क्या आपको मुंहमें दर्दनाक दर्द हुआ है?	0%	6%	58%	31%	5%
4.क्या आपको अपने दांत, मुंहया बत्तिसि की समस्याओं की वजहसे अपने आपको किसीभी खाद्य पदार्थखाने के लिए असहज पाया है?	0%	2%	83%	14%	1%
5..क्या आप अपने दाँत, मुँह, या बत्तिसिकी वजह से अपने आपको स्वयंके प्रतिसजग पाया है?	0%	0%	73%	26%	1%
6.क्या आप अपने दाँत, मुँह, या बत्तिसि के साथ कि समस्याओं की वजह से तनाव महसूस किया है?	0%	3%	64%	31%	2%
7.क्या आप अपने दाँत, मुँह,या बत्तिसिके साथ समस्याओं की वजह से आपका आहार असंतोषजनक रहा है?	0%	8%	49%	29%	14%
8.क्या आप अपने दाँत, मुँह, या बत्तिसि के साथ समस्याओं की वजहसे भोजन रोकना पडा है?	0%	47%	53%	0%	0%
9.क्या आप अपने दाँत, मुँह, याबत्तिसि के साथ समस्याओं की वजहसे आराम करने में मुश्किल हुई है?	0%	45%	33%	19%	3%
10.क्या आप अपने दाँत, मुँह, या बत्तिसि के साथ समस्याओं की वजहसे एकसा शर्मिंदा हुए है?	0%	0%	50%	48%	2%
11.क्या आप अपने दाँत,मुँह, याबत्तिसि के साथ समस्याओं की वजहसे अन्य लोगों के साथ चिड़चिडेसे हो गये है?	0%	5%	67%	28%	0%
12.क्या आप अपने दाँत, मुँह, या बत्तिसि के साथ समस्याओं की वजह से अपने सामान्य काम करने में कठिनाई हो रही है?	12%	76%	12%	0%	0%
13.क्या आपने महसूस किया है कि सामान्य रूपमें जीवन अपने दाँत, मुँह, याबत्तिसि के साथ समस्याओं की वजह से कम संतोषजनक था?	0%	66%	34%	0%	0%
14.क्या आप पूरी तरह से अपने दांत, मुंह या बत्तिसिके साथ समस्याओं की वजहसे काम करने में असमर्थहो गये है?	0%	40%	52%	8%	0%

CONCLUSION

This was a questionnaire study. The aim of the present study was to evaluate oral health related quality of life in tuberculosis patient by means of Hindi version of OHIP-14 questionnaire. Hindi version of OHIP 14 was a very useful tool for exploring the various dimensions of impact such as functional limitation, physical pain, psychological discomfort, physical disability, psychological disability, social disability and handicap in India (Vadodara) population. So overall because the problems related with the teeth, denture or mouth the oral health related quality of life was occasionally being affected in tuberculosis patients. Patient oriented outcomes like OHRQoL will enhance our understanding of the relationship between oral health and general health and demonstrate to clinical researchers and practitioners that improving the quality of a patient's well-being goes beyond simply treating dental maladies. This study may not provide the direct evidence for association between oral health related problems and tuberculosis but can indicate that the tuberculosis patient oral health related quality of life is being affected. Further studies in this direction can be carried out to check the oral health related problems in tuberculosis patients and its impact on quality of life of patients.

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