"Assessment of Oral Health Related Quality of life Among Cancer Patients Using Hindi Version of EORTC QLQ OH 15 in Western Uttar Pradesh, India- A cross sectional survey "

Abstract:

Background: As cancer is predicted to be the leading cause of death and the main obstacle to raising quality of life around the world in the twenty-first century, researchers and policymakers have paid close attention to this disease. Aim: To assess the oral health-related quality of life (HRQL) of cancer patients in relation to their type and therapy of cancer.

Methods: A cross-sectional survey was carried out among patients being treated in the department of radiotherapy in Aligarh who had been diagnosed with various types of cancer. The Hindi version of EOTRC Core Questionnaires (QLQ-C30 version 3) and Oral Health Module (QLQOH15) were used to evaluate the oral health related quality of life among cancer patients. The QLQ-C30 and QLQOH15 scores were linearly translated to a scale of 0-100, with a higher score denoting either a greater level of functioning or overall QOL or a reduced level of symptoms or difficulties. Through the patients' medical records, demographic and clinical data were also gathered.

Results: The most prevalent kind of malignancy seen was head and neck cancer, which affected 98 (70.1%) individuals. Every patient was undergoing active therapy. Known group comparison showed that elderly patients who underwent more complex treatment had poorer scores in various subscales of Hindi QLQ-OH 15 in comparison to patients in other treatment groups and the results were statistically significant($p \leq 0.05$).

Conclusion: When comparing the QoL of known groups, elderly patients and those who received complicated therapies had lower QoL scores than their counterparts.

Key-words: Quality of life, Cancer, Oral health, Therapy, EORTC-QLQ-OH-15

Introduction:

Cancer is predicted to be the leading cause of death and the main obstacle to raising life expectancy throughout the world in the twenty-first century therefore researchers and policymakers have paid close attention to the origin and epidemiology of the disease.[1] The issue is exacerbated for underdeveloped countries like India, where medical services are not widely available and there is no financial security for health care.[2]For 71% of all fatalities, non-communicable diseases (NCDs) were to blame. One of the leading causes of mortality was cancer (9%), and current estimates indicate that NCDs in India were responsible for 63% of all fatalities.[3]

As a result of different cancer stages, past and present anticancer therapy, and coexisting conditions that lower their quality of life, cancer patients frequently have many, unusual, and challenging oral consequences. Xerostomia, salivary hypofunction with decreased flow or changed composition, taste changes, caries, opportunistic infections, discomfort and necrosis of the jaw, mucosal inflammation, ulceration, oral candidiasis, and bleeding are some of these oral problems.

[1]NEHA AGRAWAL, [2]NARINDER DEV GUPTA, [3]SHAHID ALI SIDDIQUI

[1-2]Dept of Periodontics and Community Dentistry
Dr. Z. A. Dental College, Aligarh Muslim University, Aligarh
[3]Dept. of Radiotherapy
J.N. Medical College & Hospital,
Aligarh Muslim University, Aligarh.

Address for Correspondence: Dr. Neha Agrawal
Dept of Periodontics and Community Dentistry
Dr. Z. A. Dental College, Aligarh Muslim University, Aligarh
Email: drnehaagrawal80@gmail.com

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Additionally, it has been established that the oral cavity is the most prevalent site of infection in immunosuppressed cancer patients.[4,5,6,7]

EORTC-QLQ-OH15-module was recently developed by the EORTC QLQ group to evaluate the effect of oral and dental issues on cancer patients' quality of life. The module deals with problems brought by adverse effects of cancer therapy that are frequently neglected in follow-up visits.[8]

The purpose of this study was to assess the oral health-related quality of life (HRQL) of cancer patients of western Uttar Pradesh, India in relation to the type of cancer and type of therapy. To our knowledge, this is the first OHRQL report utilizing Hindi version of EORTC-QLQ-OH15-moduleamong cancer patients from western Uttar Pradesh, India.

Materials and methods:

A cross-sectional survey was carried out between October 2019 and September 2021. The study comprised patients being treated in the department of radiotherapy in Aligarh, who had been diagnosed with various types of cancer. Every patient was given information about the objective of the study and the privacy of any shared data before being asked to sign a consent form. Informed consent was obtained from all individual participants included in the study. The institutional ethics committee gave its approval to the project. The study included patients with cancer diagnosis, who were able to read, speak, and understand the native(Hindi)language, were at least 18 years old, of both sexes, receiving active therapy. Patients who were too elderly and frail, had cognitive impairment, were suffering from psychiatric illnesses, had cancer but were illiterate or unable to complete the questionnaires owing to disease-related deterioration were excluded from the study.

HRQL measurements:

The Hindi version of Oral Health Module (QLQOH15) and EOTRC Core Questionnaires (QLQ-C30 version 3) were used.[9,10]A self-reported questionnaire designed specifically for cancer patients, the EORTC QLQ-C30 included a global QOL scale (two questions), five functional scales, three symptom scales, and six single items. One eight-item OHQoL scale, three single items, and two two-item contingency scales describing usage (yes/no), issues with dentures, reception of (yes/no), and satisfaction with information were all included in the EORTC QLQ-OH15

module. The questionnaires used in the present study were previously translated in Hindi and were evaluated in accordance with the manual's guidelines.[11,12]These were verified and cross cross-culturally adaptable versions of the questionnaire obtained from EORTC website (https://qol.eortc.org/questionnaires). Prior to the start of the survey, all of the psychometric parameters, including content validity, criterion validity, and construct validity, were determined and found to be good. This part of the study will be published in another article.

The QLQ-C30 and QLQOH15 scores were linearly translated to a scale of 0-100, with a higher score denoting either a greater level of functioning or overall QOL or a reduced level of symptoms or difficulties.[11]Through the patients' medical records, demographic and clinical data were also gathered. In the presence of a member of the study team, the patients were asked to complete a self-reported questionnaire.

Statistical analysis:

SPSS software was used to perform statistical analysis (version 20.0). The groups' data were shown as mean and standard deviation (SD). Shapiro-Wilk and Kolmogorov-Smirnov tests were employed to determine normality. The kruskalwallis test, non-parametric test, was performed to demonstrate significantdifference between groupsbecause the data examined were not normally distributed. P values of 0.05 or less were considered significant.

Results:

A total of 161 cancer patients were initially evaluated for eligibility. 140 out of 147 patients who met the eligibility requirements accepted the invitation to participate, resulting in a response rate of 95.23 percent. The Socio-demographic characteristics of study population are presented in table 1.The mean age of the patients was 52.71 ± 12.90 years. There were 30(21.4.2%) patients who were female and 110 (78.6.0%) men among them .42(30%) of the patients were illiterate and the majority of the patients were unemployed (52.9%). The majority of the patients (65.7%) were from rural areas.

The most prevalent kind of malignancy seen in the study population was head and neck cancer, which affected 98 (70.1%) individuals. Breast cancer was the second most prevalent kind of cancer in the studied population, with a 10% prevalence, followed by Cervical cancer. The most common diagnosis for head and neck cancer patients was tongue cancer

(22.8%), followed by buccal mucosa cancer (18.6%). Every patient was undergoing active therapy. The most common treatment modality was radiotherapy with chemotherapy among 68(48.6%)patients, followed by surgery radiotherapy with chemotherapy among 48(34.3%), surgery and radiotherapy among 14(10%) and radiotherapy among 10(7.1%) . The mean duration of cancer was 24.09±17.03 months. (Table 2)

The EORTC group's linear transformation method was used to translate the EORTC QLQ C-30 and QLQ OH-15 scores into a 0-100 scale.

The mean values of the several QLQ C-30 subscales of QLQ C-30 for the Hindi translation were given in table 3. The global health status/QoL subscale's mean score was 55.4762±15.01.

In the functional subscale, the physical functioning subscale's mean score was 71.6190 ±23.65988. The mean score on the subscale measuring role functioning was 75.7143±27.07211. The average score for the subscale measuring emotional functioning was 72.3430±26.92292. The mean score for the subscale measuring cognitive functioning was 85.2381±17.55267. The social functioning subscale's mean value was 77.3810±22.97528. The median scores on the subscale measuring symptoms were as follows. The tiredness subscale's mean score was 41.4286± 25.76972. The average score on the subscale measuring nausea and vomiting was 18.3333± 26.84443. The pain subscale's mean value was 27.142924.83703.

The dyspnoea subscale had a mean score of 6.1905±15.27039. The physical functioning subscale's mean score was 71.6190± 23.65988. The Insomnia subscale has a mean score of 26.1905±30.39461. The average score on the subscale measuring appetite reduction was 49.0476 ±34.72925. The Constipation subscale's mean value ranged from 10.0000 to 19.87169. The Diarrhea subscale has a mean score of 4.7619±14.17681. The Financial difficulties subscale's mean value was 58.5714±29.61826.More symptoms or issues were reflected by higher ratings. The average score was 40.33 ±26.88604 for pain, 65.95± 22.667 for xerostomia, 43.49± 26.707 for soreness, and 18.57 ±14.005 for information.

For EORTC QLQ OH1555, more symptoms or issues were reflected by higher ratings. The average score was 40.33 ±26.88604 for pain, 65.95± 22.667 for xerostomia, 43.49± 26.707 for soreness, and 18.57 ±14.005 for information.

The findings of the known group comparison using the Kruskal Wallis Test were statistically significant (P≤ 0.05) and demonstrated that patients with head and neck cancer had lower scores on several subscales of the Hindi QLQ-OH 15 in comparison to other heterogeneous cancer patients.(Table 4).

Known group comparison was performed by using Kruskal Wallis Test which showed that patients who underwent more complex treatment had poorer scores in various subscales of Hindi QLQ-OH 15 in comparison to patients in other treatment groups patients and the results were statistically significant (P< 0.05) (table 5)

Table1: Socio-demographic characteristics of study population

Age	Frequency	Percentage
20-40yrs	42	30.0
41-60yrs	62	44.3
61-80yrs	36	25.7
Age in years mean (SD)	52.47(12.901)	
Gender		
Male	110	78.6
Female	30	21.4
Marital status		
Single	4	2.8
Married	124	88.6
Widowed/ Divorced	12	8.6
Education status		
Illiterate	42	30.0
Primary school	8	5.7
Middle school	22	15.7
High school	24	17.1
Intermediate school	22	15.7
Graduate	20	14.4
Professional	2	1.4
Occupation		
Unemployed	74	52.9
Unskilled	40	28.6
Semi Skilled	18	12.8
Semiprofessional	8	5.7
Income		
≤ 3,907	18	12.9
3,908–11,707	82	58.6
11,708–19,515	18	12.8
19,516–29,199	12	8.6
29,200 –39,032	8	5.7
39,033–78,062	2	1.4
Residence		
Urban	48	34.3
Rural	92	65.7

Table 2: Clinical characteristics of study population

Cancer type	Frequency	Percentage
Lung	4	2.9
Colorectal	8	5.7
Breast	14	10.0
Cervical	12	8.5
Head and neck cancer	98	70.1
Sigmoid colon	2	1.4
Urinary bladder	2	1.4
Head and neck cancer		
Absent	40	28.6
Tongue	32	22.8
Buccal mucosa	26	18.6
Retromolartriagon	4	2.9
Alveolus	4	2.9
Supra glottis laryngeal carcinoma	10	7.1
Pyriform fossa	10	7.1
Soft plate	6	4.3
Tonsil	4	2.9
Floor of mouth	2	1.4
Hard palate	2	1.4
Metastasis		
Present	28	20.0
Absent	112	80.0
Stage of cancer		
Stage I	14	10.3
Stage II	74	52.8
Stage III	43	30.8
Stage IV	9	6.1
Treatment status		
In active treatment	140	100.0
>2months post-treatment	-	-
Treatment modality		
Radiotherapy	10	7.1
Radiotherapy + Chemotherapy	68	48.6
Sugery+ Radiotherapy	14	10.0
Surgery+ Radiotherapy +Chemotherapy	48	34.3
Co morbidities		
Absent	124	88.6
Present	16	11.4
Oral cancer duration (in months)	Mean (sd)	
Mean (sd)	24.09(17.032)	

Table 3: Descriptive statistics of Hindi version of QLQ C-30 and QLQ OH-15

QLQ C-30	Mean	SD
Global health status/QoL		
Global health status/QoL	55.4762	15.01969
Functional scale		
Physical functioning	71.6190	23.65988
Role functioning	75.7143	27.07211
Emotional functioning	72.3430	26.92292
Cognitive functioning	85.2381	17.55267
Social functioning	77.3810	22.97528
Symptom scale		
Fatigue	41.4286	25.76972
Nausea and vomiting	18.3333	26.84443
pain	27.1429	24.83703
dyspnoea	6.1905	15.27039
Insomnia	26.1905	30.39461
Appetite loss	49.0476	34.72925
Constipation	10.0000	19.87169
Diarrhea	4.7619	14.17681
Financial difficulty	58.5714	29.61826
EORTC QLQ OH-15		
Pain/discomfort	40.33	26.88604
Xerostomia	65.95	22.667
Soreness	43.49	26.707
information	18.57	14.005
Worn dentures*	-	
Ill fitting dentures	-	

Table 4- Median subscale scores of Hindi QLQ-OH015 in relation to cancer TYPE

cancer type		N	Mean Rank	Kruskal Wallis Test	Asymp. Sig.
Pain/discomfort	Lung	4	23.50		
	Colorectal	8	16.69		
	Breast	14	23.93		
	Cervical	10	44.20	66.964	0.00
	Head and neck cancer	98	86.76		
	Sigmoid colon	2	30.25		
	Urinary bladder	2	12.00		
		138			
Soreness	Lung	4	24.75		
	Colorectal	8	14.62		
	Breast	14	24.29		0.00
	Cervical	10	42.50		
	Head and neck cancer	98	86.99	69.730	
	Sigmoid colon	2	31.25		
	Urinary bladder	2	11.00		
	Total	138			
Information	Lung	4	65.50		
	Colorectal	8	43.00		
	Breast	14	26.50		0.00
	Cervical	10	46.90		
	Head and neck cancer	98	82.28		
	Sigmoid colon	2	20.50		
	Urinary bladder	2	20.50	43.784	
	Total	138			
Xerostomia	Lung	4	29.12		
	Colorectal	8	20.94	60.643	
	Breast	14	32.39		
	Cervical	10	36.35		0.00
	Head and neck cancer	98	85.35		
	Sigmoid colon	2	22.50		
	Urinary bladder	2	40.25		
	Total	138			

Table 5: Median subscale scores of Hindi QLQ-OH-15 in relation to Treatment Modality

treatment		N	Mean Rank		
Pain/Discomfort	Radiotherapy	10	57.60		
	Radiotherapy + Chemotherapy	68	60.35		
	Sugery+ Radiotherapy	14	76.57	6.970	.043
	Surgery+ Radiotherapy +Chemotherapy	48	78.31		
	Total	140			
Soreness	Radiotherapy	10	35.80		
	Radiotherapy + Chemotherapy	68	61.19		
	Sugery+ Radiotherapy	14	77.04		
	Surgery+ Radiotherapy +Chemotherapy	48	95.43	17.501	.001
	Total	140			
Information	Radiotherapy	10	57.30		
	Radiotherapy + Chemotherapy	68	68.59		
	Sugery+ Radiotherapy	14	73.67	2.279	.047
	Surgery+ Radiotherapy +Chemotherapy	48	78.36		
	Total	140			
Xerostomia	Radiotherapy	10	53.35		
	Radiotherapy + Chemotherapy	68	55.02		.001
	Sugery+ Radiotherapy	14	80.44	17.129	
	Surgery+ Radiotherapy +Chemotherapy	48	87.54		
	Total	140			

Discussion:

The prognosis of cancer is often assessed using the survival ate, expected length of life without disease, time since pathogenesis began, and other sickness factors. These findings are still significant, but it is becoming increasingly clear that it is also crucial to evaluate how cancer and different therapy stages affect patients' health-related quality of life (HRQOL), which may have an impact on their ability to work, mental well-being, and social interactions.[13,14]

Each person's oral health is essential to their overall quality of life, but complications from cancer therapies including surgery radiation, and chemotherapy can significantly deteriorate it.[15]Additionally, these therapies may indirectly affect the oral soft and hard tissues due to their propensity for local and systemic toxicity.[16]

40% to 70% of cancer patients are estimated to develop oral side effects as a result of the disease and its treatment.[17] Among these adverse effects include oral mucosal and dental infections, reduced saliva formation, sticky oral secretions, pain, taste alterations or taste loss, and soft and hard tissue necrosis.[4-7,18,19]

Poor oral health can diminish the intensity of therapy or possibly cause patients to quit getting it completely, which reduces the chance of a successful outcome in addition to affecting quality of life.[20]In order to minimise symptoms and maximise treatment, oral health concerns should be frequently checked during the therapy.[21]

In this study, it was shown that men (78.6%) had a greater prevalence of cancer than women (21.4%), which was comparable to studies done in Persia,[22] China,[23]Sri Lanka[24] and other places, but not Indonesia.[25]While rates varied greatly between countries, globally, the incidence rate for all malignancies combined was 19% higher in males (222.0 per 100,000) than in women (186 per 100,000) in 2020.[26]

The mean age of the cancer patients in this research was 52.47 years, which was consistent with earlier studies.[23,24,25]

The most frequent cancer type in the current study was head and neck cancer (70.1%), which was followed by breast cancer (10%) and cervical cancer (8.5%). In another study Breast (32%) and Head and Neck (27%) cancer were most commonly diagnosed cancer among study population.[27]Similar findings were also found in other investigations.[23]These findings contrasted with those of a research done in Persia, where head and neck cancer was only detected in 5.6% of patients.[22]

This study utilised a translated and cross-culturally adapted version of the EORTC QLQ-OH15 to assess the OHRQoL of cancer patients in India (QLQ). According to our knowledge, this is the first research in India to evaluate the quality of life associated with oral health among cancer patients using the Hindi translation of the EORTC QLQ OH 15. Additionally, there have been relatively few research conducted using the recently developed questionnaire. Three other studies[22,23,24]that used this instrument focused more on cross-cultural adaptation and validation than they did on the actual EORTC QLQ OH-15 results. As a result, it was unable to compare this tool's results to those of other investigations.

Chewing, swallowing, speaking, and expression are just a few of the essential bodily functions that might be affected by the adverse effects of HNC therapy, which could lead to nutritional issues, social isolation, and a lower quality of life.[28,29]Health-related quality of life (HRQoL) in long-term HNC survivors has been evaluated in a number of studies, and there appears to be a trend for it to decline with therapy.[30]

Conclusion:

These QOL tools were shown to be useful in evaluating the quality of life associated with oral health among cancer patients in India. When comparing the QoL of Known groups, elderly patients and those who received complicated therapies had lower QoL scores than their counterparts. Numerous forms of HNC led to a considerable decrease in the QoL of cancer patients.

A QoL and symptom evaluation can assist the dentist in focusing on the most significant symptoms and provide advice for suitable actions to improve QoL outcomes and the response to therapy, hence lowering the risk of oral complications from cancer treatment.

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