Original Article

Effect of Comprehensive Nursing Intervention on Anxiety and Quality of Life in Postoperative Patients with Oral Cancer

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Abstract

Purpose: Surgery has a negative effect on the mental, physical, and functional health of patients with oral cancer, which affects their quality of life (QOL). The study aimed to assess the effect of comprehensive nursing intervention on anxiety and QOL in postoperative patients with oral cancer.

Methods: We investigated the level of anxiety and QOL of 200 postoperative oral cancer patients. After the comprehensive nursing intervention, the Beck Anxiety Inventory scale and European Organization for Research and Treatment of Cancer tools were used to assess the level of anxiety and QOL, respectively.

Results: There was a statistically significant difference in terms of educational status ($p=0.02$), monthly income ($p<0.01$), cancer stage ($p<0.01$), and tumor metastasis ($p=0.02$). The experimental group experienced a significant decrease in anxiety ($p=0.04$), and their QOL was significantly higher ($p=0.05$) than that of the control group.

Conclusion: Our study indicates that a comprehensive nursing intervention can lower the risk of surgical complications, enhance patients' psychological state by reducing anxiety, and enhance their QOL in patients with oral cancer.

Keywords: Oral cancer, postoperative patients, comprehensive nursing intervention, anxiety, quality of life.

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Introduction

Oral squamous cell carcinoma (OSCC) is a frequent head and neck cancer that arises in the oral mucosa. Oral Cancer (OC) is a disease that can be treated with a variety of therapeutic approaches, including surgery, radiation, and chemotherapy. For most oral malignancies, surgery is the most reliable and early final treatment option. The patient and the tumor are the two main aspects that influence the therapy option. A surgical strategy is determined by several parameters, including the primary site's location, size, closeness to bone, and depth of infiltration.[1] In addition to the physical symptoms, patients also exhibit psychological symptoms like anxiety due to concerns about their prognosis and course of therapy.[2] Distress, anxiety, or depression has a detrimental effect on the quality of life (QOL) of OC patients. Health-related QOL refers to how patients feel about their physical, emotional, social, and mental abilities and conveys how they feel about their lives at any given point along the course of their disease.[3]

As far as we are aware, this is the first study of its kind in India to evaluate the effect of comprehensive nursing intervention in this particular patient population following surgery. The study aimed to evaluate the impact of comprehensive nursing intervention in improving anxiety and quality of life in postoperative patients with oral cancer.

Materials and Methods

Study design and setting

A total of 200 patients with stage 1 to stage 4 that underwent oral surgery were included in this study (July 2022 to February 2024). The study was approved by (Desh Bhagat University's) Institutional Review Board (DBU/RC/2023/2338 ethical number). The study was conducted at (Atal Bihari Vajpayee Regional Cancer Centre, Agartala, Tripura, India.)**.** The study employed an interventional methodology to evaluate the level of anxiety, and QOL in patients with post-operative OC. The flowchart for the patient enrollment selection procedure is showed in **Figure 1**.

Comprehensive nursing intervention

In addition to providing educational support on the use of thyme honey, dental care, and counselling among postoperative patients with OC, comprehensive nursing intervention also involves helping with relaxation techniques, mouth opening exercises, active and passive range of motion, stretching exercises, maintaining good posture, chin tucks, and shoulder blade squeezes by research personnel. This is done through the use of a PowerPoint presentation and video on the experimental group. The control group was asked to follow the hospital's standard treatment, while the nursing intervention was given for 10-15 minutes and the educational intervention for 30 minutes. It was followed 9–10 times a day for 5 days in a row, and the patient practiced exercise when it was necessary. Standard treatment included giving all patients scheduled nurse interventions and administering medications in accordance with the doctor's directions.

Assessment of anxiety

The level of anxiety symptoms among the patients who were enrolled was measured using the beck anxiety inventory (BAI) Scale.

Assessment of QOL

The QOL was measured using questionnaires created by the European Organization for Research and Treatment of Cancer (EORTC QLQ-C30) Quality of Life Group.

Statistical Analyses

Statistical Package for Social Sciences (SPSS) version 25 was used for data analysis. A p-value below 0.05 was considered statistically significant for all analyses.

Results

Out of 200 participants, 61% (n =122, 95% CI: 53.8 – 67.7) and 39% (n =78, 95% CI: 32.2 – 46.1) were male and female for each group, respectively, resulting in a male-to-female ratio of 1.56:1. The demographic and clinical characteristics of the experimental and control groups are shown in **Table 1. Table 2 and Table 3** summarize the mean and standard deviation of the pre-and post-test levels of anxiety and QOL

among postoperative patients with OC respectively. After the nursing intervention, the experimental group experienced a significant decrease in anxiety ($p<0.04$), and their quality of life was significantly higher ($p<0.05$) than that of the control group.

Table 1: Socio-demographic and clinical characteristics of the participants (n=200).

Variables	Characteristics	Experimental group (n=100) n (%)	Control group (n=100) n (%)	p-value
Age (Years)	21-30	0	1 (1)	0.11
	31-40	8 (8)	13 (13)	
	41-50	38 (38)	22 (22)	
	51-60	28 (28)	31 (31)	
	61-70	26 (26)	33 (33)	
Gender	Male	58 (58)	64 (64)	0.38
	Female	42 (42)	36 (36)	
Religion	Hindu	82 (82)	85 (85)	0.17
	Muslim	9 (9)	7 (7)	
	Christian	5 (5)	8 (8)	
	Others	4 (4)	0	
Educational status	No formal education	20 (20)	27 (27)	0.02*
	Primary	48 (48)	36 (36)	
	Secondary	32 (32)	30 (30)	
	Higher secondary	0	7 (7)	
	Graduate and above	0	0	
Occupation	Govt	2 (2)	0	0.054
	Private	13 (13)	9 (9)	
	Self employed	22 (22)	33 (33)	
	Daily wager	18 (18)	27 (27)	
	Unemployed	45 (45)	31 (31)	
Monthly income (Rs)	≤Rs.10, 000	50 (50)	24 (24)	<0.01*
	10, 001-15,000	44 (44)	53 (53)	
	15, 001-20,000	4 (4)	21 (21)	
	>20,000	2 (2)	2 (2)	
Marital status	Single	5 (5)	4 (4)	0.34
	Married	87 (87)	93 (93)	
	Widow	6 (6)	3 (3)	
	Divorced	2 (2)	0	

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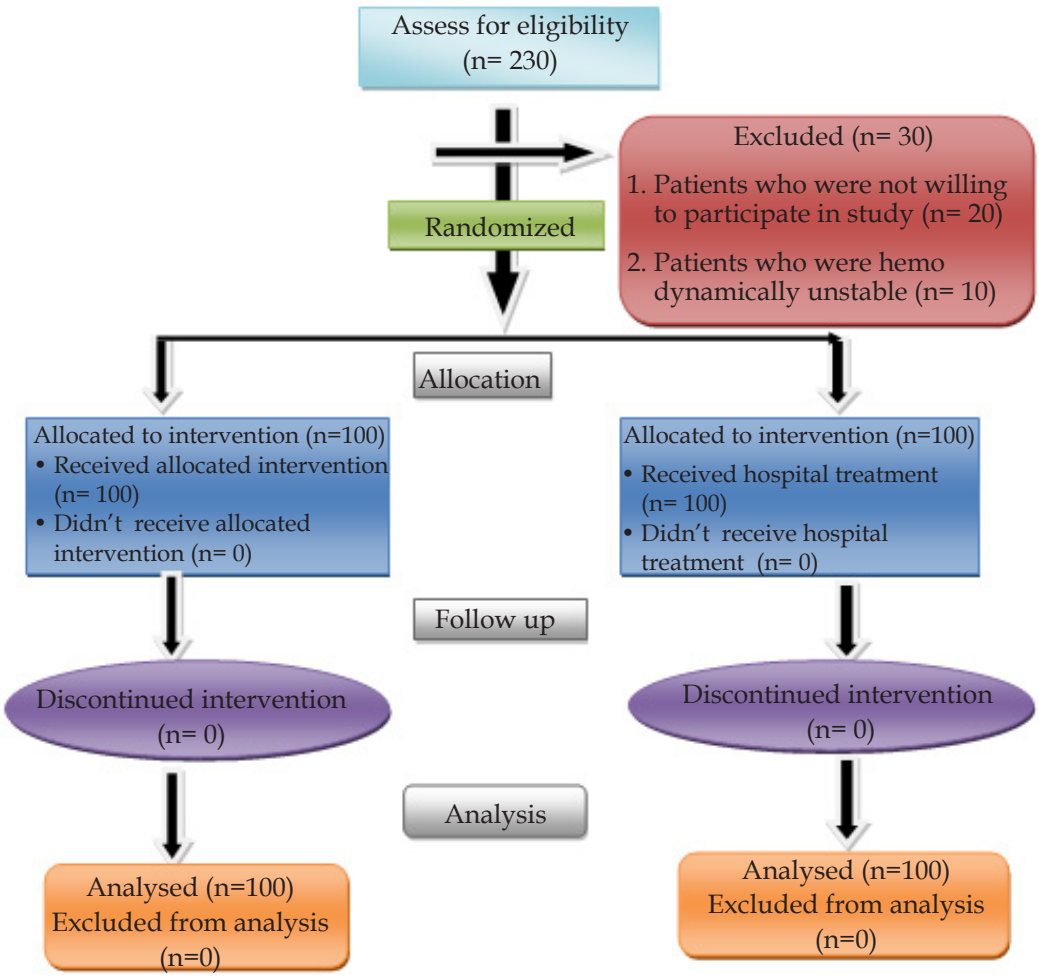
Types of surgery	Tumor Resection	6 (6)	3 (3)	0.55
	Micrographic surgery	3 (3)	2 (2)	
	Glossectomy surgery	17 (17)	22 (22)	
	Mandibulectomy surgery	50 (50)	57 (57)	
	Maxillectomy surgery	22 (22)	15 (15)	
	Neck Dissection	2 (2)	1 (1)	
Cancer Stage	I	24 (24)	53 (53)	<0.01*
	II	27 (27)	28 (28)	
	III	31 (31)	10 (10)	
	IV	18 (18)	9 (9)	
Tumor metastasis	Yes	41 (41)	26 (26)	0.02*
	No	59 (59)	74 (74)	
Primary site	Lip	8 (8)	5 (5)	0.30
	Buccal Side	65 (65)	51 (51)	
	Hard Palate	3 (3)	5 (5)	
	Posterior molar Region	2 (2)	4 (4)	
	Tongue	12 (12)	18 (18)	
	Floor of mouth	1 (1)	4 (4)	
	Angle of mouth	4 (4)	1 (1)	
	Submandibular gland	1 (1)	2 (2)	
	Base of tongue	3 (3)	4 (4)	
	Maxilla	0	1 (1)	
	Cheek	0	2 (2)	
	Alveolus	1 (1)	3 (3)	

Table 2: Mean and SD of pre test and post test levels of anxiety among postoperative patients with oral cancer (n=200).

Sl. no.	Groups	Max score	Pre test	Post test	Wilcoxon's Test	
			Mean ± SD	Mean ± SD	Z value	P-value
1	Experimental Group (n=100)	63	27.7 ± 7.4	26.5 ± 6.5	-2.2	0.04*
2	Control Group (n=100)	63	30.7 ± 6.4	30.3 ± 6.9	-1.4	0.17

Table 3: Mean and SD of pre and post-test level of quality of life among postoperative patients with oral cancer (n=200).

	Dimension Of Quality of life	Max score	Pre test	Post test	Wilcoxon's Test	
			Mean ± SD	Mean ± SD	Z value	P value
Experimental (n=100)	Functional Scale	20	12.7 ± 4.3	11.1 ± 4.1	-2.7	0.01*
	Role Function	8	5.7 ± 1.7	5.4 ± 1.5	-1.6	0.10
	General Symptoms	48	24.3 ± 7.8	23.0 ± 7.2	-2.1	0.05*
	Cognitive Function	8	5.7 ± 1.7	5.5 ± 1.8	-1.0	0.28
	Emotional Status	16	10.8 ± 3.5	9.4 ± 4.1	-2.5	0.04*
	Social Functioning	12	7.5 ± 3.2	6.3 ± 3.3	-2.2	0.05*
	Over All	112	66.9 ± 16.1	62.2 ± 15.9	-2.4	0.05*
	Over All Global Health Status	14	8.0 ± 2.1	8.3 ± 1.7	-2.0	0.04*
Control (n=100)	Functional Scale	20	16.4 ± 2.9	15.9 ± 3.3	-1.9	0.05*
	Role Function	8	6.3 ± 1.5	6.5 ± 1.3	-1.1	0.25
	General Symptoms	48	26.3 ± 3.8	25.7 ± 3.9	-0.3	0.32
	Cognitive Function	8	6.6 ± 1.7	6.7 ± 1.4	-1.5	0.11
	Emotional Status	16	13.1 ± 2.8	12.6 ± 2.7	-1.4	0.15
	Social Functioning	12	10.3 ± 1.7	10.6 ± 2.4	-1.7	0.14
	Over All	112	78.4 ± 12.2	78.1 ± 12.9	-1.6	0.18
	Over All Global Health Status	14	7.2 ± 1.5	7.0 ± 1.6	-1.5	0.16



Figure

Discussion

Treatment for HNC tumors may have a detrimental effect on patients' health- related QOL, which is now widely regarded as a crucial secondary outcome of treatment. Reliable assessment tests are therefore essential to comprehend the rationale behind the selection and customization of particular medical therapies based on patient needs.[4] The questionnaire scales known as BAI and EORTC QLQ-C30, which are frequently used to measure anxiety and QOL in oncological settings, were utilized in this investigation. In earlier studies these scales have been shown to be valid and reliable instruments for assessing anxiety[5] and QOL respectively.[6] Patients have increased fatigue following increasingly complicated surgical operations, which affects their QOL and increases their risk of developing mental disorders including depression and anxiety. The reasons behind these postoperative physical and psychological problems are surgical wounds, the stress of the sickness, and the interventions.[7]

Our study supports the results of the earlier research, which showed that adults over 40 are the most likely age group to be affected by OSCC.[8] We found that the incidence increased after the age of 40. The age ranges 41–50 in both the experimental and control groups showed the highest incidence, followed by the 41–50 and 61–70 age groups. According to our research, men appear to be affected by oral cancer almost twice as much as women, with the first group having higher rates of mortality from alcohol and tobacco use, as was also observed in the previous study.[9] The previous Indian study also indicated that Hindus had a higher risk of oral cancer than people from other religious backgrounds, and our research yielded the same results.[10]

Based on the observation of most OC patients in primary schools, our study indicated a relationship between a lower educational level and a higher risk of OC. The dearth of knowledge regarding OC in general, including diagnosis and treatment, may account for some of this correlation. Our findings are corroborated by a prior study that showed those with only a primary school were more likely than those with a higher or university degree to have a poor outcome related to OC.[11] Regarding occupation, our research showed that those without jobs (unemployed) had a higher risk of developing OC. This finding may be attributed to the fact that unemployed individuals may find it more difficult to make ends meet financially and may have less access to healthcare. As the previous study also pointed out, unemployment can lead to stress and psychological malaise as well as unhealthy behaviors that are known to be risk factors for illnesses, accidents, and fatalities.[12] Another study supported our findings, which showed a correlation between OC and low individual or household income because most of our patients were from lower-income households.[13]

In terms of marital status, we found that, like in the earlier study, married people were at a higher risk of developing OC. This conclusion might have resulted from the fact that single persons are frequently younger, their diagnosis is often made later, or they are not at the typical age at which OC is diagnosed.[14] Among the patients with OC who were enrolled, mandibulectomy was the most frequently performed surgical procedure. The previous study also showed similar outcomes in addition to the internal repair and open reduction.[15]

Patients with stage I oral cancer should seek therapy as soon as possible because it is highly curable. In our analysis, stage I cancer was more common than all other stages (stages I–IV). Since most of the patients in our study could be categorized as stage I due to the lack of tumor metastases, this was related to tumor metastasis. The buccal mucosa is where OSCC is most frequently seen in Southeast Asia. This could be because smokeless tobacco products like areca nuts and betel quid are becoming more and more popular in this area.[16] As buccal mucosa cancer accounted for the majority of the recruited patients, our research confirms their findings.

For patients with postoperative OC, comprehensive nursing intervention involvement is a useful therapeutic alternative that reduces fatigue and anxiety and improves the patients' QOL, mood, and satisfaction with the course of therapy. In our study, we found that following comprehensive nursing intervention, the experimental group experienced a significant decrease in anxiety and their QOL was significantly higher than that of the control group. Earlier studies also confirmed that nursing intervention have a positive impact to reduce anxiety

[17] and to increase the QOL.[18] Patients with OC must cope with the subsequent detrimental effects on their confidence and self-esteem in all spheres since they are unable to conceal functional alterations that occur after surgery.

However our study has some limitations. Only one center was used for the research. There was a five-day follow-up period, which might have affected the results. Furthermore, it is recommended that the current study be performed in various parts of the nation because patient QOL and anxiety may vary based on lifestyle and support alternatives.

In conclusion, according to this study, the comprehensive nursing intervention was significantly connected with patients' anxiety and QOL, and it will help greatly lower anxiety and enhance QOL for postoperative OC patients. Consequently, it is important to implement this nonpharmacologic intervention in clinical practice to alleviate post-surgical anxiety and enhance patients' QOL and the unfavorable outcomes associated with OC and its treatment. It is necessary to conduct additional research to investigate the relationship between comprehensive nursing interventions with anxiety and QOL for various ethnic groups and diseases. A comprehensive nursing intervention can be utilized in routine practice to reduce functional impairments following surgery, which in turn can enhance the QOL in postoperative OC patients.

Ethical Clearance/Statement of Ethics: The study was conducted in accordance with the Declaration of Helsinki, and this research was approved by Desh BhagatUniversity's Institutional Review Board (Date: 03/05/2023 Number:DBU/RC/2023/2338).

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