



# A study to assess oral mucositis and coping strategies adopted by patients undergoing radiotherapy treatment for head and neck cancer at

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## ABSTRACT

**Background of study:** Radiation induced oral mucositis is common among patients with head and neck cancer and is one of the most devitalizing side effects of radiotherapy treatment. Mucositis generally appears 1 to 2 weeks after therapy is started and persist for many weeks. The incidence of mucositis is about 100% of patients receiving radiation therapy for head and neck cancers.

**Objectives:** To assess the existing level of oral mucositis among patients undergoing radiotherapy treatment. To assess coping strategies adopted by patients undergoing radiotherapy treatment. To determine association between severity of oral mucositis and selected socio-demographic variables.

**Material and methods:** Descriptive study with cross sectional approach was used to assess oral mucositis and coping strategies. The sample consisted of 40 patients with head and neck cancer undergoing radiotherapy treatment, who fulfilled eligibility criteria. Sampling techniques used for the present study was probability method, systemic random sampling technique. The data collection tools included socio-demographic questionnaires, oral mucosa rating scale (OMRS) by WHO and checklist prepared to assess coping strategies. Interview technique was used for data collection. Descriptive and inferential statistics were used to analyse the data according to objectives.

**Results:** The demographic data showed that majority 77.5% of the study participants were in the age group of above 40 years, 67.5% were male, 97.5% were married, 40% study participants were illiterate, 45% of the study participants were farmer by occupation, 77.5% study participants resides in rural area, 82.5% were Hindu and 87.5% of the study participants were in the category of below 1 year of duration of illness. Majority 35% of the study participants found with the grade IV oral mucositis according to oral mucosa rating scale by WHO, followed by 30% with grade III, 22.5% with grade II, 7.5% with grade 0 and 5% with grade I of oral mucosa rating scale. Majority 35% of the study participants have adopted NGT (naso-gastric tube) insertion to deal with oral mucositis, followed by 27.5% chlorohexidine mouthwash and 22.5% oral ulcer gel use. There was no significant association found of oral mucosa rating scale (OMRS) grades scores of the study participants with their selected socio-demographic variables.

**Key words:** Oral mucositis, Radiotherapy treatment, Head and neck cancer

## I Introduction

Radiation therapy, also called radiotherapy, is a type of cancer treatment involves the use of ionizing radiation for cancer treatment. Ionizing radiation acts by formation of free radicals which cause DNA (deoxyribonucleic acid) damage and cell death.<sup>[1]</sup>

Mucositis is the painful inflammation and ulceration of the mucous membranes, linings of the digestive tract, usually as an adverse effect of chemotherapy and radiotherapy treatment for cancer.<sup>[2]</sup>

Radiation induced oral mucositis is common among patients with head and neck cancer and is one of the most devitalizing side effects of radiotherapy treatment.<sup>[3]</sup>

Radiation induced oral mucositis can progress to an acute life-threatening stage as a result of severe physical obstruction of food and water intake with subsequent weight loss and septic complications due to lost protective epithelial and basement membrane barriers. This leads to limitation of local tumour control due to cancer treatment interruption and alteration in radiation dose fractionation.<sup>[4]</sup>

Mucositis generally appears 1 to 2 weeks after therapy is started and persist for many weeks. The incidence of mucositis is about 100% of patients receiving radiation therapy for head and neck cancers.<sup>[5]</sup>

Mucositis of the oral cavity is one of the most debilitating, painful side effects of cancer treatment, resulting in disruption of function and integrity of the mucous membranes, progressing from asymptomatic erythema to painful ulcerations, bleeding, local and systemic infections, and compromised airway.<sup>[6]</sup>

Alimentary tract mucositis increases mortality and morbidity and contributes to rising health care costs. Therefore, oral mucositis can be a dose-limiting condition, disrupting a patient's optimal cancer treatment plan and consequentially decreasing their chances of survival.<sup>[7]</sup>

Literature reveals that oral mucositis is one of the most debilitating side effects of radiotherapy treatment leads to interruption of the treatment of the patient as it can be dose limiting, can cause treatment delays and grossly interferes with the treatment plans. Therefore, this study was undertaken to assess oral mucositis and coping strategies adopted by patients undergoing radiotherapy treatment for head and neck cancer.

### I.1 Statement of problem

A study to assess oral mucositis and coping strategies adopted by patients undergoing radiotherapy treatment for head and neck cancer at DRVVPPRH, Loni

### I.2 Objectives

1. To assess the existing level of oral mucositis among patients undergoing radiotherapy treatment.
2. To assess coping strategies adopted by patients undergoing radiotherapy treatment.
3. To determine association between severity of oral mucositis and selected socio-demographic variables.

## II Methodology

### II.1 Research design and approach

Descriptive study design with cross-sectional approach was used for the present study.

### II.2 Setting of the study

The study was conducted in oncology in patient department and oncology day care centre of DRVVPPRH, Loni. DRVVPPRH, Loni is a 1275 bedded multispecialty trust hospital at Loni village.

### II.3 Sample

Cancer patients undergoing radiotherapy treatment for head and neck cancer who fulfils inclusion and exclusion criteria.

### II.4 Sample size

Sample size for present study was 40.

### II.5 Sampling technique

Probability systemic random sampling technique was used for the present study

## II.6 Sampling Procedure

Samples were screened for eligibility of inclusion and exclusion criteria. Patients eligible and willing to participate were included in the study.

## II.7 Inclusion and Exclusion criteria

**Inclusion criteria:** The patient who are;

- willing to participate.
- undergoing radiotherapy treatment for head and neck cancer.
- understands Marathi, English, Hindi.

**Exclusion criteria:** The patient who are;

- Unconscious or terminally ill.

## II.8 Tools and techniques

Interview method was used to collect the data from the participants, which consists of following sections;

**Section A:** It consists of socio-demographic variables of the participants namely Age, Gender, Marital status, Education, Occupation, Residence, Religion, Duration of illness.

**Section B:** It consists of Oral Mucosa Rating Scale (OMRS) by WHO which is a five grading system aims to describe the severity of oral mucositis.

**Section C:** It consists of structured questionnaire(checklist) aims to assess coping strategies adopted by the study participants.

## II.9 Data collection procedure

### Ethical aspects

- a) **Ethical clearance:** Proposal was presented before Institutional Ethics Committee of PIMS(DU), Loni and ethical clearance was obtained.
- b) **Permission from concerned authority:** Written permission was obtained from Medical Superintendent of the DRVVPPRH, Loni Bk.
- c) **Informed written consent:** The study participants were contacted on one-on-one basis and explanation regarding study objectives, confidentiality of their data, their willingness to participate and right to withdraw from the study were provided to them. Informed written consent was obtained from participants of the study.

**Data collection:** After self-introduction and informed written consent the data was collected from the participants using interview method.

## II.10 Data Analysis

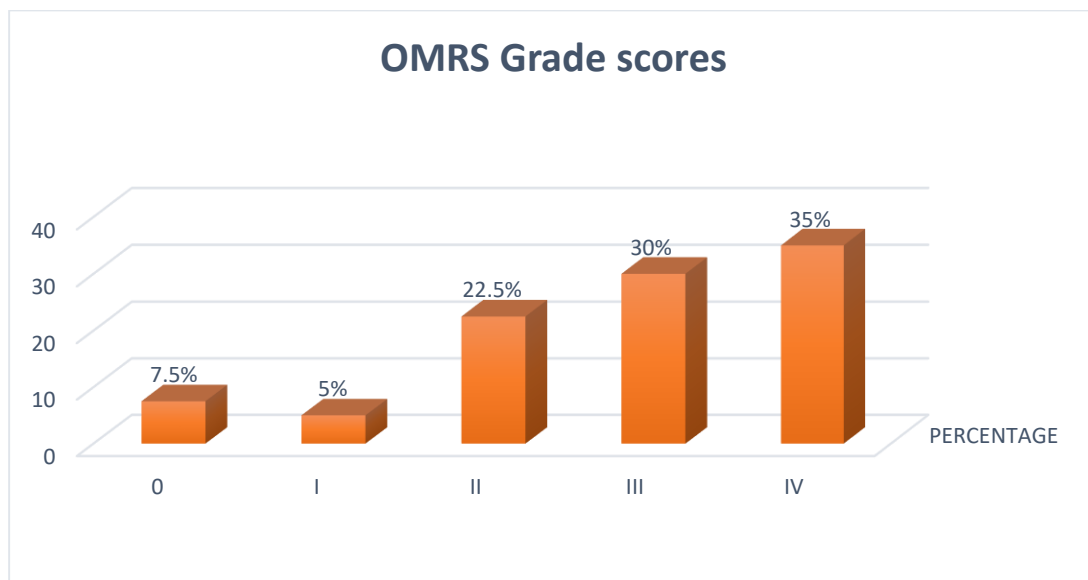
Data was coded in the Microsoft excel sheet. Descriptive and inferential statistics were used to analyse the data according to objectives. Frequency and percentage were used to analyse the data regarding socio-demographic variables, level of oral mucositis and coping strategies adopted by the study participants. The chi-square test was used to determine association between severity of oral mucositis and selected socio-demographic variables.

## III Results

### III.1 Assessment of socio-demographic characteristics of the study participants

Majority of the study participants 31(77.5%) were in the age group of above 40 years, followed by 8(20%) were belongs to age group of 31-40 years of age. Gender wise distribution shows that 27(67.5%) were male, followed by 13(32.5%) were female. Majority of the study participants 39(97.5%) were married, followed by 1(2.5%) was unmarried. Majority of the study participants 16(40%) were illiterate, followed by 15(37.5) belongs to the category of primary education. Majority of the study participants 18(45%) were farmer by occupation, followed by 11(27.5%) were unemployed. Majority of the participants 31(77.5%) resides in rural area, followed by 9(22.5%) resides in urban area. Majority of the participants 33(82.5%) were Hindu, followed by 5(12.5%) were Muslim by religion. Majority of the study participants 35(87.5%) were in the category of below 1 year of duration of illness followed by 4(10%) belongs to the category of 1-3 years.

### III.2 Assessment of level of oral mucositis in study participants undergoing radiotherapy treatment for head and neck cancers



**Fig. 1- level of oral mucositis in patients undergoing radiotherapy treatment for head and neck cancers.**

Fig. 1 reveals that the highest observed OMRS grade was grade IV which was 35% of the total study participants, followed by grade III which was 30% of the total study participants, followed by grade II which was 22.5% of the total study participants, followed by grade 0 which was 7.5% of the total study participants, whereas lowest observed OMRS grade was grade I which was 5% of the total study participants.

### III.3 Assessment of coping strategies adopted by study participants undergoing radiotherapy treatment for head and neck cancer

Majority 35% of the study participants have adopted NGT (naso-gastric tube) insertion to deal with oral mucositis, followed by 27.5% study participants uses chlorohexidine mouthwash, 22.5% study participants uses oral ulcer gel, 10% of the study participants uses cold water rinses, 2.5% people use Normal saline rinses and remaining 2.5% of the study participants uses betadine gargles to deal with the side effects of radiotherapy induced oral mucositis.

### III.4 Association of OMRS grade scores of study participants with their selected socio-demographic variables.

**Table. 1 Association of OMRS grade scores of study participants with their selected socio-demographic variables.**

Demographic variables	Chi- value	Tabulated value	Inference
Age	0.84	21.02	NS
Gender	0.31	15.50	NS
Marital status	0.04	21.02	NS
Education	0.63	21.02	NS
Occupation	0.39	21.02	NS
Residence	0.18	9.48	NS
Religion	0.17	31.41	NS
Duration of illness	0.08	21.02	NS

Table.1 shows values of chi-square test calculated at 0.05 level of significance. It reveals that that there is no significant association of OMRS grades scores of the study participants with their selected socio-demographic variables.

## IV Discussion

The present study was undertaken to assess oral mucositis and coping strategies adopted by patients undergoing radiotherapy treatment for head and neck cancers. The study reveals that majority 77.5% of the study

participants were in the age group of above 40 years, 67.5% were male, 97.5% were married, 40% study participants were illiterate, 45% of the study participants were farmer by occupation, 77.5% study participants resides in rural area, 82.5% were Hindu and 87.5% of the study participants were in the category of below 1 year of duration of illness.

#### **IV.1 Findings related to oral mucositis among patients undergoing radiotherapy treatment for head and neck cancer**

Findings of the present study shows that grade IV mucositis was most common i.e., 35%, followed by grade III (30%), grade II (22.5%), grade 0 (7.5%), grade I (5%). A similar study conducted by Luitel A et. al. for assessment of oral mucositis among patients undergoing radiotherapy for HNC. The study revealed that grade II mucositis was most common i.e., 52.11%, followed by grade I (22.5%), grade III (18.3%) and grade IV (7.04%).<sup>[8]</sup>

#### **IV.2 Findings related to coping strategies adopted by patients undergoing radiotherapy treatment for head and neck cancer**

Findings of the present study shows that 35% of the study participants have adopted NGT (nasogastric tube) insertion, followed by 27.5% chlorohexidine mouthwash, 22.5% oral ulcer gel, 10% cold water rinses, 2.5% Normal saline rinses and 2.5% betadine gargles as a coping strategy.

#### **IV.3 Findings related to Association of OMRS grades scores of the study participants with their selected socio-demographic variables.**

The findings show that there is no significant association of OMRS grades scores of the study participants with their selected socio-demographic variables at 0.05 level of significance. A similar study conducted by Archana G et. al. for assessment of prevalence and measures to manage oral mucositis among radiation therapy patients at tertiary care centre of Andhra Pradesh. The study findings reveals that association of demographic variables with prevalence & measures to manage oral mucositis among clients receiving radiation therapy; age, gender, diagnosis of cancer, client had undergone any other treatment modality, previous radiation therapy shows significant association whereas other variables were not found to have any significant association with level of selected side effects of radiation therapy.<sup>[9]</sup>

### **V Conclusion**

The study findings have shown that the oral mucositis was present among patients undergoing radiotherapy treatment for head and neck cancers. Majority of the patients were found with grade IV i.e., life threatening category of oral mucosa rating scale and have adopted various coping strategies to cope up with the oral mucositis.

#### **Declaration by Authors**

**Ethical approval:** The present study was approved by the Institutional Ethics Committee of Smt. Sindhutai Eknathrao Vikhe Patil College of Nursing of Pravara Institute of Medical Sciences (DU), Loni. [Ref. No. PIMS/SSEVPCON/2023/03(16)]

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**Conflicts of Interest:** The authors declare no conflict of interest.

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