

## Enhancing knowledge cancer survivor about complication after cancer therapy on oral cavity in Indonesian cancer foundation, east java coordinator branch

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### Abstract

**Introduction:** Many different modalities are available for treating cancers of the oral cavity. Surgery, radiotherapy and chemotherapy, or a combination, are the most common treatments provided. Head and neck cancer (HNC) represents the 6th most widespread cancer in the world. Oral consequences of cancer chemotherapy involve acute complication, including oral mucositis, inflammation and bleeding of gums, reduction in salivary flow, taste disturbances, bacterial and candida infections and chronic complication such as atrophy of the mucosa and dryness of the mouth.

**Material and Methods:** This research is in collaboration with the Indonesian Cancer Foundation, East Java Coordinating Branch. The methods used in this research were a questionnaire administered before and after the intervention to assess the differences in respondent knowledge. The intervention carried out in this study was counseling, which was delivered after participants had completed the pre-test questionnaire. The questionnaire was developed by researchers referring to the impact of radiotherapy and chemotherapy on the oral cavity after cancer therapy, especially the head and neck cancer literature review specifically for this research, and then it was divided into pre- and post-test group designs. Data analysis used descriptive analysis and independent t-test.

**Results:** The results (post-test score - pretest score) yielded significant results, with  $p = 0.001$  ( $\alpha < 0.05$ ). The results showed a difference in the pretest frequency compared to the post-test, indicating a significant increase in knowledge among participants.

**Conclusion:** Health education about the impacts of radiotherapy and chemotherapy for head and neck cancer can enhance patients' understanding of the side effects of these treatments and when to seek help to the medical profession.

**Keywords:** Cancer survivor; Cancer therapy; Radiotherapy; Chemotherapy; Head and neck cancer

### 1. Introduction

Head and neck cancers represent the 6th most widespread cancers in the world (1,2). Lip and oral cavity carcinomas account for 2% of the incidence and 1.8% of cancer mortality worldwide. Oral cavity squamous cell carcinoma, including all ethnic groups, is generally 2–3 times more frequent in male patients than in female patients (3).

There are many different modalities available for treating cancers of the oral cavity. Surgery, radiotherapy and chemotherapy, or combination are the most common treatments provided (4). In patients with cancers chemotherapy

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and head and neck radiation therapy associated with cancer treatment leads to numerous side effects, their overall survival and quality of life (5).

Oral consequences of cancer chemotherapy involve acute complication, including oral mucositis, inflammation and bleeding of gums, reduction in salivary flow, taste disturbances, bacterial and candida infections and chronic complication such as atrophy of the mucosa and dryness of the mouth (6). Approximately all (90%–97%) patients getting irradiation to the head and neck area develop a certain grade of mucositis. Over 40% of head and neck cancer patients develop severe mucositis. Patients receiving standard-dose chemotherapy or head and neck radiotherapy may experience incidence of 15%–40% of oral mucositis (7).

Chemotherapy and radiation cause many changes in the body as they destroy malignant cells. One major change is its weakened immune system, makes them particularly susceptible to getting fungal infections. Oropharyngeal candidiasis is a common fungal infection in immunocompromised patients. Malignancies, radiotherapy and chemotherapy compromises the cell mediated immunity predisposing the person to fungal infection (8).

People with head and neck cancer (HNC) also often experience changes in taste due to their treatment, which can negatively impact their nutritional status. These changes in taste, known as dysgeusia, can cause loss of appetite, making it difficult to consume enough calories and nutrients to maintain weight and overall health. Additionally, the changes in taste can cause patients to avoid certain foods, leading to nutrient deficiencies. This can also have a negative impact on the patient's overall quality of life (9).

This community service aims to help the community to increase knowledge and self-awareness regarding complications of oral therapy for head and neck cancer for recipients of chemotherapy, radiotherapy, or a combination of chemotherapy and radiotherapy at the partner. The goal is to increase awareness, understanding and knowledge regarding oral complications that can arise as side effects of oral cancer therapy through the Self Oral Screening (SOS) method properly and correctly, maintaining cleanliness and health of the oral mucosa so that it will improve the quality of life.

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## **2. Material and methods**

### **2.1. Population and Sample**

The methods used in this study are quantitative methods and an analytical descriptive research design. The sample size uses the total sampling method. All data obtained are recorded anonymously, stored on a secure server, and can only be accessed by authorized health professionals from the Department of Oral Diseases, Faculty of Dentistry, Airlangga University, Surabaya. The study was conducted on cancer survivors at the Indonesian Cancer Foundation, East Java Coordinator Branch, who were undergoing cancer therapy, be it radiotherapy, chemotherapy or both, in community service activities held at the Indonesian Cancer Foundation office, East Java Coordinator Branch, Surabaya on June 27, 2024. Prospective respondents who meet the inclusion criteria, namely male or female, aged 18 years or over 18 years, undergoing cancer therapy, be it radiotherapy, chemotherapy or both. Furthermore, respondents were screened and asked for their approval in the form of a signature on the informed consent. Respondents excluded from this study refused to fill out the pretest and posttest or to have their data published in a scientific article. The data used are data obtained from pretest and posttest scores from 21 respondents who are cancer survivors at the Indonesian Cancer Foundation, East Java Coordinating Branch, who are undergoing cancer therapy, such as radiotherapy, chemotherapy or both.

### **2.2. Design**

The research model used in this study is the One Group Pretest Post-test, where the variable is measured as a group before (pretest) and after (post-test) intervention or counseling is given. After intervention is given to the group, the values before and after treatment are compared. The advantage of this method is that it can compare values before and after intervention on the same respondents using the same measuring instrument (10).

### **2.3. Instrument**

The instrument used in this research was a questionnaire administered before and after the counseling was given. The questions used to measure the pretest and posttest amount to 10 multiple-choice questions and refer to the counseling material summarized from the booklet distributed to respondents.

## 2.4. Intervention

Respondents were asked to fill out a pretest sheet for 10 minutes when they first arrived. After completing the pretest, each respondent was given a booklet containing information about the complication of radiotherapy and chemotherapy on the oral cavity after cancer therapy especially head and neck cancer. and hand fan containing self oral screening (SOS), After all respondents completed the pretest, the speaker provided intervention in the form of counseling. After the question-and-answer session was completed, participants were asked to fill out the post-test sheet for 10 minutes.

## 2.5. Statistical Analysis

The data analysis techniques used are descriptive analysis and independent t-test. Data is processed using SPSS software. The data allows it to be visualized, processed, and presented as diagrams to facilitate analysis

## 3. Results and discussion

From a total of 42 participants who participated in the counseling program, 21 pretest and posttest results were analyzed. The demographic profile of the participants included in data analysis is presented in Table 1. A total of 21 participants were male (66.7%) and the remaining were female (33.3%). Based on cognitive age, the highest number of participants was recorded in the middle age category (ages 45-59) at 33.3%, followed by the adult category (ages 26-44) at 57.1%, the elderly category (9.6%), and the young adult category (ages 18-25) at 0%.

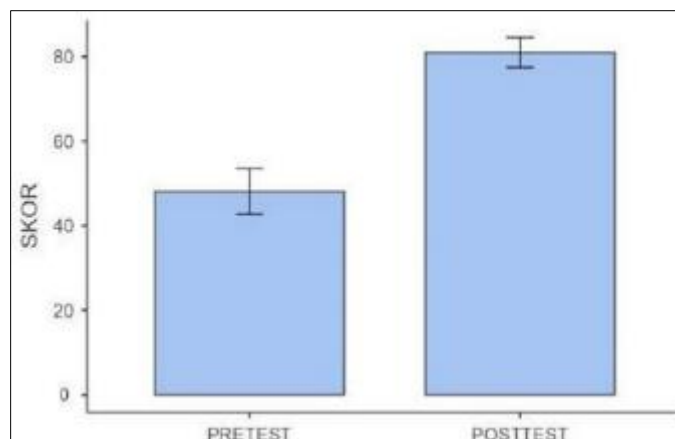
The average pretest score of the 21 participants was 48.09 with a value range of 20-90. While the average posttest score was 80.95 with a value range of 50-100. These results indicate an increase in knowledge among participants of the activity by 59.41% indicating an increase in knowledge after the counseling intervention.

**Table 1** Results of the average pretest and posttest scores of counseling participants

Demographic aspect	Number of Subjects	Percentage (%)
Sex		
Male	7	33,3
Female	14	66,7
Cancer		
Head and Neck Cancer	15	71,4
others	6	28,6
Age		
18-25	0	0
26-44	7	33,3
45-59	12	57,1
≥60	2	9,6
Address		
Java	20	95,2
Outside Java	1	4,8

In this study, 21 respondents were cancer survivors, and the intervention group had a higher post-pre score. Based on the data collected, before the data analysis, a normality test was carried out first with Shapiro Wilk and the results obtained were  $p > 0.05$  (Table 2). Homogeneity of variance test (Levene test)  $> 0.05$ . the population variances are equal

The results of the Independent t-test analysis (post-test score - pretest score) yielded significant results, with  $p = 0.001$  ( $\alpha < 0.05$ ). The results of comparative analysis knowledge variable (Table 2) showed that there is a difference in the pretest frequency compared to the post-test, which indicates a significant increase in knowledge among participants after the counseling.



**Figure 1** Comparison between pretest dan post test result

**Table 2** Results of the average pretest and posttest scores of counseling participants

	Mininum	Maximum	Mean	Normality test	Homogeneity of variance test	Independent t test
Pretest	20	90	48.09	p= 0.865	p=0.069	p = 0.001
Posttest	50	100	80.90	p=0.789		

#### 4. Discussion

Radiation and chemotherapy can directly damage both the soft and hard tissues of the oral structures, while also causing indirect harm through systemic toxicity. These oral complications, which can be either acute or chronic, may occur during or after cancer treatment and typically include issues such as mucositis, dysgeusia, and infections. Although studies indicate that the oral health of many cancer patients resembles that of the general population, The various oral complications resulting from intensive cancer treatments can significantly impact patients' quality of life, highlighting the need for effective oral health care. Maintaining good oral health is crucial for supporting daily activities, including eating, communication, and preventing infections. Because of the importance of knowing and preventing the side effects of cancer treatment, then start from yourself to do self-examination to increase awareness of your oral health. There is a need for counseling for cancer fighters to do self oral screening (SOS) and also know what impacts might occur (11).

Health education or counseling activity to increase knowledge in recognizing and preventing the impact of radiotherapy and chemotherapy on the oral cavity using counseling methods received a good response from cancer survivor participants at the Indonesian Cancer Foundation, East Java Coordinator Branch. A total of 21 cancer fighters and 21 companions participated in the activity in full. The pretest results showed an average score of 48.09. These results indicate that the level of knowledge of cancer fighters related to the complication of radiotherapy and chemotherapy and their prevention is not good enough, some participants still have a low level of knowledge. The results of the posttest evaluation showed an increase in the knowledge score of counseling participants with an average score of 81.90. This increase in the average score was due to participants having previously gained knowledge that had never been known about the complication of radiotherapy and chemotherapy on the oral cavity along with how to check themselves with self- oral assessment (SOS) so that the participant's score could only increase from the pretest score. However, the results of the independent t-test showed a significant increase in the posttest score, indicating that the health counseling carried out increased participants' knowledge.

Health education or counseling activities are one of the important means that contribute to increasing public knowledge, with adequate knowledge, it will help form the expected actions (12,13). Counseling methods have a significant influence on the level of knowledge that is owned and that can be applied in everyday life, including in achieving a better level of health. Counseling using media can help improve understanding. The effectiveness of counseling media is determined by the number of senses of reception involved. The more senses used, the easier it will be to understand the delivery of counseling messages. Respondents' attitudes can also be improved through media- based education.

Media used for health promotion such as leaflets, booklets and posters or banners can provide information continuously so that it is hoped that behavioral changes can be more consistent. (14,15,16)

Based on research from Rathore's (17) and Fernandes' (18), found that there was an increase in knowledge in mothers after being given health education with booklet media, so that the information in the booklet was very effective in increasing knowledge.. This was proven by Sumaryati's (19) research that there was a significant difference in students' knowledge about anemia before and after being given intervention with booklet media. Booklets will give the reader an impression if presented with attractive images so that the booklet is not formal and stiff (20). The advantages of booklets such as being able to be stored for a relatively long time, can be studied independently, can help other media, besides that booklets also have weaknesses, namely that readers are required to have reading skills (21).

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## 5. Conclusion

Health education or counseling about the effects of radiotherapy and chemotherapy for head and neck cancer can enhance patients understanding of the benefits and side effects of these treatments, as well as strategies to manage any adverse effects. Additionally, training in self-oral screening can aid in the early detection of malignancy symptoms in the oral cavity.

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## Compliance with ethical standards

### *Disclosure of conflict of interest*

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### *Statement of informed consent*

Informed consent was obtained from all individual participants included in the study.

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