

Effect of Self-Care Teaching Module on Radiation- Induced Acute Side Effects and Clinical Outcomes for Head and Neck Cancer Patient

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Abstract

Back ground: When providing care for patients with head and neck disorders, nurses can employ a variety of strategies since these patients require direction, encouragement, support in navigating the extended cancer treatment program, the healthcare system, and support with problem-solving. One of the main responsibilities of radiation care nursing is teaching. **Aim:** This quasi-experimental study design aimed to evaluate the effect of self-care teaching module on radiation-induced acute side effects and clinical outcomes (Means minimizing the radiation-induced side acute effects and distress such as mucositis, dysphagia and dermatitis by using specific actions which were done by patients or their families) in head and neck cancer patient. **Subject and methods:** A purposive sample of A group of fifty adult patients with head and neck cancer who had just started radiation therapy were chosen. Two groups of twenty-five patients each were formed from the subjects. While Group II received these self-care teaching modules from the researcher, Group I, the control group, did not get any such modules about acute side effects. Data relevant to the study were gathered using four tools. Tool (I) was a structured patient assessment questionnaire. Tool (II) Modified Eastern Cooperative Oncology Group performance scale. Tool (III) a self-care questionnaire. Tool (IV) was Clinical outcomes assessment sheet **Results:** The major findings showed that, one and three months after receiving the self-care instruction module, there was a statistically significant difference in the mean scores regarding the change of quality grade of functional capacity for study group II. **Conclusion:** The incidence, intensity, and distressing nature of radiation-induced acute side effects in head and neck patients were all reduced as a result of the self-care education module. **Recommendations:** It was suggested that all head and neck patients should have regular intervention in the form of teaching self-care techniques to patients prior to undergoing radiation therapy.

Key words: Head and Neck Cancer, Radiation Therapy, Self- Care, Teaching Module,

Introduction

The term "head and neck cancer" (HNC) refers to a collection of tumors that develop on the mucosal surfaces of the upper aero-digestive tract (UADT), which includes the main and minor salivary glands as well as the oral cavity, pharynx, larynx, and paranasal sinuses. Squamous cells, which coat the mucous surfaces of the mouth, nose, and throat, are the origin of the majority of head and neck malignancies. We refer to these as SCCs, or squamous cell carcinomas. (Lutzky, 2011; Dunne et al.,2012).

Every year, HNC accounts for about 550,000 cases worldwide. About 63,000 Americans are estimated to be affected by head and neck cancers each year, accounting for approximately 3% of all cancer cases in the country. Roughly 40% of head and neck cancers happen in the mouth, 15% in the throat, 25% in the larynx, and the remainder malignancies happen somewhere else (thyroid and salivary glands).

The American Cancer Society reports that men are more likely than women to get HNC. (Fitzmaurice et al,2017; Siegel et al, 2017).

The use of tobacco, especially smokeless tobacco, excessive alcohol use, and viruses including Epstein-Barr and the Human Papilloma virus (HPV) are currently recognized causes of HNC. Long-term sun exposure (particularly in cases of lip and skin cancer of the head and neck region), poor oral and dental hygiene, inhalants from the environment and the workplace, use of recreational drugs (such as marijuana), malnutrition, and gastric reflux disease (GERD) are additional risk factors. (Thompson, 2014).

HNC symptoms are non-specific and can include a lump or sore on the head or neck that won't go away, a persistent sore throat, painful and/or hard to swallow, Alteration or raspiness in the voice, Symptoms such as sore throat, ear enlargement, nasal blockage on one side, and/or bleeding from the nose, Mouth

ulcers, sore tongues, non-healing mouths, and/or red or white spots (Lydiatt et al.,2017).

The precise location of the tumor, the cancer's stage, the patient's age, and their overall health are just a few of the variables that affect each patient's treatment strategy. Surgery, radiation therapy, chemotherapy, targeted therapy, immunotherapy, or a combination of treatments may be used to treat head and neck cancer. High-energy x-rays or other radiation are used in radiotherapy to kill cancer cells. Patients with locally advanced and unresectable malignancies may take chemotherapy concurrently, sequentially, or in combination with radiation. (Marur, & Forastiere, 2017; Gregoire et al.,2017).

The use of radiation therapy, either in conjunction with surgery or chemotherapy, has resulted in a notable rise in the cure rates of numerous head and neck cancers. On the other hand, high radiation therapy doses in sizable regions such

as the salivary glands, maxilla, mandible, skin, and oral mucosa may cause a number of undesirable side effects that appear during or after treatment. Ionizing radiation in healthy tissues within a radiation field is what causes this harm. (Rosales et al.,2015).

Based on when they often manifest, radiation-induced alterations can be categorized into two groups: early or acute side effects, which are seen during or just after treatment, and late side effects, which appear months or years after radiation therapy has ended. Radiation caries, xerostomia, candidiasis, dysphagia, dermatitis, mucositis, and dermatitis are a few of the side effects of radiotherapy that badly harm patients' quality of life. The occurrence and severity of these problems can be prevented, or at least reduced, by implementing oral care practices before to and following radiation therapy. (Hancock et al.,2015).

Nurses play a critical role in managing the consequences of HNC patients' condition and medical treatments, including round-the-clock hospital nursing care as well as outpatient and community nursing support. Patients frequently experience physical and psychological trauma and struggle to comprehend what is happening to them and learn coping mechanisms. (Bjordal et al.,2016).

The management of patients' actual and potential reactions to their disease and its treatment, as well as their rehabilitation back into everyday life, are all part of the nursing care provided to patients with head and neck cancer. Empirical studies have indicated that proficient patient education can enhance adherence to treatment plans. Innovative pedagogical approaches, such modules, can be employed to facilitate patient education. It is well known that skilled nursing care and coordination

are essential to patients' support. (Kjaer et al.,2016).

Aim of the study:

The aim of this study is to evaluate the effect of self-care teaching module on radiation-induced acute side effects and clinical outcomes in head and neck cancer patient.

Research hypothesis:

Null hypothesis: - there is no difference of mean score clinical outcomes of adult patients with head and neck cancer undergoing radiation therapy who received self-care teaching module beside hospital routine care and control group.

Hypothesis (1): - Adult Patients with head and neck cancer undergoing radiation therapy who received self-care teaching module beside hospital routine care expected to have higher mean score clinical outcomes than control group.

Operational definition: -

Clinical outcomes: -

Means minimizing the radiation-induced side acute effects and

distress such as mucositis, dysphagia and dermatitis by using specific actions which were done by patients or their families.

Subjects & Method:

Study design:

This study used quasi-experimental research design.

Setting of the study:

The study was carried out in the radiation therapy department of Tanta University Main Hospital's outpatient clinic, which is connected to higher education, and the Gharbia Cancer Society, which is connected to social affairs.

Subjects:

A purposeful sample of fifty adult patients with head and neck cancer who were seeking treatment at the Radiation Therapy department in the Tanta University main hospital's outpatient clinic and the Gharbia cancer society were chosen. Based on hospital admissions, the sample size estimate came out to be 50 patients. Based on the study group's anticipated improvement in

radiation-induced acute side effect outcomes at a 95% confidence level, the following computation was made using the study IP information software program: **(Steven Thimpson equation, 1988)**

$$n = \frac{NxP(1-P)}{\{(N-1x(\frac{d^2}{z^2})) + P(1-P)\}}$$

n=Sample size, N=Total society size, d=error, percentage = (0.05), P=percentage of availability of the character and objectivity= (0.7) for 70%, Z=The corresponding standard class of significance 95%= (1.96), The calculated sample size was 50

The subjects were divided into two groups:

Group I (control group): It comprised 25 patients with head and neck cancer who were treated as directed by their physician and got standard nursing care from hospital staff.

Group II (study group): It included 25 patients with head and neck cancer who satisfied all inclusion requirements, received a self-care education module about acute side effects created and

executed by the researcher, and were receiving treatment as directed by their doctor. **The inclusion criteria were as follow:**

Subjects were selected according to the following criteria: -

- 1) Adult patients, ages 21 to 55.
- 2) Patients with consciousness.
- 3) The pathologically confirmed stage I–III head and neck cancer in the patient.
- 4) Having radiation treatment recently.
- 5) Free of concomitant conditions like renal and cardiac failure. **The exclusion criteria were as follow:**

- 1) Patients who have previously undergone radiation treatment.
- 2) People who are unable of speaking.
- 3) Individuals who have a history of mental illnesses or dementia.
- 4) expectant mothers.

Data collection tools:

For the purpose of this study, four tools were employed to gather data:

Tool (I) structured patient assessment questionnaire: - After reviewing pertinent literature, the

researcher created a structured questionnaire sheet to gather data. (Flinders, 2006; Moon, 2002; Maes S, & Karoly et al., 2005) and consisted of two parts:

Part one: “Socio-demographic data” This contained the name, age, sex, marital status, and educational attainment of the patient.

Part two: “Patient Health Profile Tool” It covered past and current medical history, including non-cancer diagnoses, cancer diagnoses, cancer stage, radiation therapy anatomical site, concurrent cancer treatments the patient is receiving, cancer treatments received prior to radiation therapy initiation, and the number of therapeutic sessions attended. **Tool (II) “Modified Eastern Cooperative Oncology Group performance scale” (ECOG):**

It was developed by the Eastern Cooperative Oncology Group (ECOG), published in 1982, and changed by the investigator as a standard technique to assess the ability of cancer patients to do

everyday activities. In order to qualify subjects for follow-up and evaluation, the scale was used to determine their functional ability at the time radiation therapy was started. On a five-point rating system with a range of 0 to 4, the performance status was ascertained. By placing a point on the scale, the patient expressed his capacity to carry out routine tasks. **The following is the interpretation of the 0–4 scoring system. (Oken et al., 1982)**

Grade	ECOG performance status
0	Completely functional, capable of performing at all pre-disease levels without hindrance.
1	Limited in physically demanding activities yet mobile and capable of performing light or sedentary tasks, such as office and light housework.
2	Ambulatory, capable of taking care of oneself at all, but unable to perform any work-related tasks; awake for more than half of the waking hours.
3	Only partially able to take care of themselves; spending

	over 50% of awake hours in bed or a chair.
4	Fully incapacitated; unable to perform personal hygiene; entirely confined to a chair or bed.

Tool (III): “Self-care questionnaire “: - After reviewing pertinent literature, the researcher created a self-care questionnaire to gather data. **(De Melo et al., 2013; Bastable, 2019).**

- It was used to assess the patient's understanding of radiation treatment, acute side effects, variables that contribute to side effects, and possible mitigation techniques. The definition of radiation therapy, its advantages, its types and forms, the National Cancer Institute's list of common acute side effects, contributing factors, aggravating and mitigating factors, the length of each side effect, and steps to take to lessen discomfort from these side effects were all included.

The scoring system for knowledge was calculated based on three points scale:

The response was accurate and

comprehensive (2)

An answer was marked as correct or incomplete (1)

- Wrong or uninformed response received (0)

The total score of knowledge items was calculated and categorized as following: -

When the overall score of the item responses was greater than or equal to 75%, it was deemed to indicate a high degree of knowledge. A moderate degree of knowledge was defined as having a total item answer score between 65-74%. -When the overall score of the item responses was less than 65%, it was deemed that the degree of knowledge was low.

Tool IV) Clinical outcomes assessment sheet: - The researcher designed this instrument as a self-documentation tool for patients to record side effects they observed after reviewing pertinent literature based on (Dodd, 1989). The patient listed every adverse effect that he had after receiving radiation therapy. If the patient was

illiterate, the researcher questioned him and noted his response, along with the date the side effect first appeared. Patients assessed the severity of the side effect using a five-point rating system that went from (1) to (5), and the results showed:

Rarely happen.

1. Very simple intensity.
2. Simple intensity.
3. Moderate intensity.
4. Sever intensity.

Additionally, the patient assessed the side effect's discomfort using a different five-point rating system that went from (1) to (5) as follows:

1. Rarely distressing.
2. Very simple distressing.
3. Simple distressing.
4. Moderate distressing.
5. Sever distressing.

Additionally, each self-care measure's efficacy in reducing these adverse effects was scored on a three-point rating system that went from (1) to (3) as follows: -

1. Completely alleviate the side effect.

2. Partially alleviate the side effect.
3. Did not help at all
and the grades were calculated as the following table:

Grade	The intensity of side effect
1-2	Low intensity.
3	Moderate intensity.
4-5	High intensity.
Grade	The distressing of side effect
1-2	Minor distressing.
3	Moderate distressing.
4-5	Sever distressing.
Grade	The effectiveness of self-care action in alleviating the side effect
1	Completely alleviate the side effect.
2	Partially alleviate the side effect.
3	Did not help at all.

II. Method:

1. The administrative procedure:

written consent Before beginning this study, formal letters outlining the goal and methodology were obtained from the responsible

authority of the head of the educational hospital connected to Tanta University hospital, the radiation therapy department in the outpatient clinic, and the Gharbia Cancer Society.

2- Ethical consideration: -

On June 12, 2016, the ethical committee of Tanta University's Faculty of Nursing authorized this study.

After the patient and/or their family were told of the study's purpose, written informed consent was acquired. Patients were advised that their information would be kept private and confidential and that they could withdraw from the study at any time by using a code number rather than their name.

3- Duration of the study:

Data was gathered over eight months, starting in November 2016 and ending in June 2017.

4- Tools Development:

-**Tool (I):** - The researcher designed it based on a thorough examination

of pertinent literature in order to gather baseline data. (Flinders, 2006; Moon, 2002; Maes S ,& Karoly et al., 2005)

-Tool (II): - “Modified Eastern Cooperative Oncology Group performance scale” (ECOG) it was developed by the Eastern Cooperative Oncology Group (ECOG) and published in 1982 (Oken et al., 1982).

-Tool (III) “Self-care questionnaire”: - Self-care questionnaire was created by the researcher to gather data following an assessment of pertinent literature. (De Melo et al., 2013; Bastable, 2019).

-Tool (IV) “Clinical outcomes assessment sheet”: - This tool was developed by the researcher to collect the data after review of relevant literature based on (Dodd, 1989) as a self-documentation tool of patient experienced side effect.

5- Content Validity:

Nine specialists from the academic staff, including professors of radiation treatment outpatient clinic,

medical-surgical nursing, and biostatistics at the college of medicine, evaluated the study's instruments to ensure that the content validity was met. Adjustments were made in line with that.

6-Reliability of the tools:

The reliability of each tool in the study was assessed using Cronbach's alpha, which yielded results that were 0.821 for Tool I, 0.842 for Tool II, and 0.829 for Tools III and IV. These results are considered to be very high.

7- A pilot study:

It was conducted on five individuals with head and neck cancer before the official study. who had just finished radiation therapy to evaluate the usefulness, practicality, and clarity of the various components of the deterrent tool. Based on the knowledge gathered from this pilot study, the researcher made minor modifications and added a few terms before starting the main investigation. The individuals in the current study did not include

the data from those patients.

7- The study group was put through data collecting after the control group by the researcher.

Four phases of the study were carried out:

Phase I: Assessment Phase: -

All research participants were informed about the objectives, benefits, and nature of the study. as well as their right to discontinue participation at any moment and without explanation.

- After reviewing pertinent literature, the researcher created a planned program.

- Using example graphs, the researcher used instructional strategies that included both demonstration and re-demonstration.

- Prior to starting radiation therapy, each patient in the control and study groups received an individual assessment using Tools I, II, and III. Additionally, pictures of the radiation site were taken before radiation therapy started, serving as a baseline to rule out other potential

causes of side effects after radiation therapy.

- Phase II: The planning phase: -

- The researcher created eight sessions for the study group during this phase to teach the patients the skills they would need to overcome acute side effects caused by radiation, and to precisely how long these would take (20 to 30 minutes). The researcher also created a colorful booklet to go along with these sessions.

Head and neck anatomy and physiology are covered in Session I.

Head and neck cancer definition and kinds are covered in Session II.

Session III: Head and neck cancer causes and treatments

The next sessions cover several aspects of radiation therapy: Session IV, Session V, Session VI, Self-care actions of Acute Radiation Mucositis, and Session VII, Self-care actions of Acute Radiation Dysphagia.

Session VIII: - A posttest consisting of closed-ended written questions was created at the conclusion of the

sessions as a summary of all the sessions.

Phase III: The Implementation phase: -

-For the study group by the researcher: -

- Prior to beginning their first round of radiation treatment, each participant had a 30-minute instruction session. The demographic questionnaire was given to the individual to complete at this session by the researcher.

Every subject received a packet comprising written teaching sheets that featured the overview of the module, which comprised the objectives, narrative, schedule, tasks, and abilities. The information that was delivered by the investigator was guided by the training sheets.

- To maintain the flow of instruction, a spoken script containing the material was used. The subject received instructions from the researcher on how to fill

out the questionnaire during that same session.

-Each subject received comprehensive instructions and a sample of a completed questionnaire to help them complete the survey.

-Each session lasted thirty minutes and covered the following topics: what radiation therapy is, how it works, its types and forms, common acute side effects (as reported by the National Cancer Institute), such as dermatitis, dysphagia, and mucositis, along with information on contributing, aggravating, and alleviating factors, how long each side effect lasts, and what steps should be taken to lessen discomfort from these side effects after reading relevant literature.

-The researcher stopped after discussing how to manage the adverse effects and requested the patient to provide feedback in his own words. Encouragement was given when the patient

However, any incorrect information or knowledge gaps were filled in right away before moving on to the

next topic.

- The patient was asked to summarize the session and was assessed for comprehension at the conclusion of each session through oral questions.

-Group talks, demonstration, and re-demonstration were employed as teaching techniques and aids during the session. As teaching tools, handouts, lap tops, and actual stuff (such as tissue paper and normal saline) were utilized.

-For control group: - The nursing team provided the patient with standard hospital treatment.

Phase IV: The Evaluation phase: -

- Radiation-induced acute side effects in head and neck cancer patients were assessed immediately, one month, and three months following radiotherapy treatment using tools II, III, and IV for both the study group and the control group.

- Acute side effect severity was evaluated prior to, during, and three months after treatment using the Modified Eastern Cooperative

Oncology Group Performance scale (tool II), the Self-Care Questionnaire (tool III), and the Clinical Outcomes Sheet (tool IV).

A comparison was made between the two groups on the effectiveness of the self-care teaching module with regard to the incidence of acute side effects caused by radiation and the clinical outcomes for head and neck cancer.

- Following radiation therapy, patients were compared to hospital regular care in control group I and study group II by employing tools II, III, and IV as soon as possible, one month, and three months later.

Limitation of the study:

-There was not enough space or a well-designed room in the radiation outpatient clinic for procedure demonstration and re demonstration.

Data processing and Analysis:

Data were organized, tabulated, and statistically analyzed using SPSS software (Statistical Package for the Social Sciences, version 19, SPSS Inc. Chicago, IL, USA). For quantitative data, the range, mean,

and standard deviation were calculated. Using the Chi-square test ($\alpha 2$) and Fisher Exact test (FE), qualitative data—which characterize a categorical collection of data by frequency, percentage, or proportion of each category—was compared between two groups and more. To compare the means of two sets of parametric data from independent samples, the student t-test was employed. The Mann-Whitney test Z value was utilized to compare the means of two sets of non-parametric data from independent samples. F value of ANOVA test was computed for comparison between more than two means of parametric data. Kruskal-Wallis ($\alpha 2$) was computed to compare more than two means of non-parametric data. The Friedman test ($\alpha 2$ value) was computed to compare more than two means of non-parametric data of related samples. For the purpose of interpreting the findings of tests of significance, significance was set at $p < 0.05$. (Dawson, & Trapp, 2001).

Results:

Table (1) shows that (48) % of the control group I ranged from 31-41 years old and (52) % of the study group II ranged from 51-55 years old. Also, it shows that (76) % of the control group I and (80) % of the study group II were male. In addition, it reveals that (92) %, (96) % of the control group I and study group II were married respectively.

Also it was found that (88) % of the control group I and (64) % of the study group II were from rural area respectively with a statistical significance difference at p level = 0.047.

In addition, it reveals that (32) % of the control group I and (48) % of the study group II were high educational level with very high statistical significance difference at p level = 0.004. Further, it was found that (63.2) % of the control group I and (40) % of the study group II were working more than 8 hours per day and (68) % of the control group I and (52) % of the study group II were sleeping more than 8 hours per day and (92) % of the control group

I and (100) % of the study group II were waking up more than 8 hours per day.

Table (2) illustrates that equal percentage (24) % of the control group I were diagnosed with laryngeal and salivary gland cancer while (24) % of the study group II were diagnosed with nasopharyngeal cancer with no significance difference.

In addition, it shows that slightly more than half (56) % of the control group I and (44) % of the study group II pathologically proven cancer of head and neck grade II and (24) % of the control group I and (32) % of the group II pathologically proven cancer of head and neck grade III and (20) % of the control group I and (24) % of study group II pathologically proven cancer of head and neck grade I.

Moreover, it illustrates that (68) % of the control group I and (40) % of the study group II suffered from pain as chief complaint with a statistical significance difference at p level=0.047 and (76) % of the

control group I and (68) % of the study group II suffered from difficulty of swallowing as chief complaint and (20) % of the control group I suffered from mouth mass as chief complaint with a statistical significance difference at p level=0.025.

Table (3): Reveals that immediately post radiotherapy, by practicing self-care actions following teaching module, dermatitis completely relieved in (66.7) % of the study group II and one-month post radiotherapy dermatitis relieved completely in all patients (100%) of the study group II with no statistical significance.

Table (4): reveals that immediately post radiotherapy, by practicing self-care actions following teaching module, dysphagia partially relieved in (68.7) % of the study group II and one-month post radiotherapy dysphagia relieved completely in (70) % of the study group II while three months' post radiotherapy dysphagia completely relieved in (100) % of the study group II with a

statistical significance difference at p level=0.033.

Figure (1): reveals that the mean score of control group I and study group II were (3.64) (6.16) respectively with very high statistical significance difference at p level=0.0006 before receiving the radiation therapy compared to (4.60) (29.52), (7.48) (29.08) one and three months after receiving the radiation therapy respectively with a statistical significance difference at p level=0.0001.

Table (1): Sociodemographic data of the studied head and neck cancer patients undergoing radiotherapy both (control and study groups) (n=50).

Variables	The studied head and neck cancer patients (n=50)				χ^2	P
	Control group (n=25)		Study group (n=25)			
	n	%	n	%		
Age years:						
31-<41	12	48.0	6	24.0	3.821	0.194
41-<51	5	20.0	6	24.0		
51-55	8	32.0	13	52.0		
Sex:					0.117	0.733
Male	19	76.0	20	80.0		
Female	6	24.0	5	20.0		
Marital status:						

Married	23	92.0	24	96.0	0.355	0.552
Widow	2	8.0	1	4.0		
Residence:						
Urban	3	12.0	9	36.0	3.947	0.047*
Rural	22	88.0	16	64.0		
Education level:						
Illiterate	3	12.0	7	28.0	15.400	0.004*
Read and write	7	28.0	1	4.0		
Primary & preparatory educ.	7	28.0	1	4.0		
High educ.	8	32.0	12	48.0		
Bachelor	0	0	4	16.0		
Job:						
Not work	6	24.0	5	20.0	0.117	0.733
Work	19	76.0	20	80.0		
If work, nature of work:						
Professional	1	5.3	0	0	5.891	0.113
Employee	3	15.8	10	50.0		
Free work	9	47.4	5	25.0		
House wife	6	31.6	5	25.0		
Working hours:						
< 6	4	21.1	10	50.0	3.548	0.170
6-8	3	15.8	2	10.0		
>8	12	63.2	8	40.0		
Sleeping hours:						
< 6	5	20.0	6	24.0	1.624	0.444
6-8	3	12.0	6	24.0		
>8	17	68.0	13	52.0		
Wake up hours:						
< 6	2	8	0	0	2.083	0.149
>8	23	92.0	25	100		

*Significant (P<0.05)

Table (2): Current medical history data among the studied head and neck cancer patients both (control and study groups) (n=50).

Current medical history data	The studied head and neck cancer patients (n=50)				χ^2	P
	Control group (n=25)		Study group (n=25)			
	N	%	n	%		
•Current diagnosis:					17.243	0.101
Buccal cancer	3	12.0	2	8.0		
Cancer of the nose & sinuses	0	0	1	4.0		
Glottic cancer	1	4.0	2	8.0		
Hypo pharyngeal cancer	5	20.0	2	8.0		
Laryngeal cancer	6	24.0	5	20.0		
Lip cancer	1	4.0	1	4.0		
Maxilla cancer	0	0	1	4.0		
Nasopharyngeal cancer	0	0	6	24.0		
Recurrent thyroid cancer	0	0	1	4.0		
Salivary glands cancer	6	24.0	0	0		
Thyroid cancer	1	4.0	2	8.0		
Tongue cancer	2	8.0	2	8.0		
•Grade of tumor:					1.220	0.543
Grade I	5	20.0	6	24.0		
Grade II	14	56.0	11	44.0		
Grade III	6	24.0	8	32.0		
•Chief complaint:					3.945	0.047*
Pain	17	68.0	10	40.0		
Sore throat	9	36.0	12	48.0	0.739	0.390
Difficulty of swallowing	19	76.0	17	68.0	0.397	0.529
A lump in the mouth	4	16.0	4	16.0	0.000	1.000
Others:						
-Lips ulcer	1	4.0	0	0	FE	1.000
-Mass in throat	1	4.0	0	0	FE	1.000
-Mouth mass	5	20.0	0	0	FE	0.025*
-Nasal mass	0	0	1	4.0	FE	1.000
-Tongue ulcer	0	0	2	8.0	FE	0.489

*Significant (P<0.05)

FE=Fisher Exact test

Table (3): Self-care actions in alleviating dermatitis side effect of radiotherapy and its alleviating effect among the study group of head and neck cancer patients (post receiving self-care teaching module on radiation induced acute side effect (n=25)).

Self-care actions in alleviating dermatitis	The studied head and neck cancer patients who received self-care teaching module (n=25)					
	Immediate after delivery		One month after delivery		Three months after delivery	
	n	%	n	%	N	%
<u>Self-care actions in alleviating dermatitis:</u>						
•Avoid using irritant soap, deodorant, perfumes and other creams over the treated area with radiotherapy	25	100	25	100	25	100
•Gently washing and drying the treatment area without massage or friction by using soft towel	25	100	25	100	25	100
•Shave the treatment area with electrical razor rather than normal razor and avoid using perfumes after shaving	25	100	25	100	25	100
•Wear loose-fitting cotton clothing over the treated area with radiotherapy	25	100	25	100	25	100
•Using cotton linen for beds	25	100	25	100	25	100
•Expose treated area to air as possible	25	100	25	100	25	100
•Avoid tape and adhesives over the treated area with radiotherapy	25	100	25	100	25	100
•Avoid ice or heating pads over the treated area and use only tape water	25	100	25	100	25	100
•Avoid exposure of treated area to sunlight and avoid using sunscreen	25	100	25	100	25	100
•Occurrence of dermatitis:						
No	19	76.0	24	96.0	25	100
Yes	6	24.0	1	4.0	0	0
χ^2	9.770					
P	0.007*					
<u>Alleviating effect of self-care actions:</u>						
Partially relieved	2	33.3	0	0	0	0
Completely relieved	4	66.7	1	100	0	0
FE (P)	FE (0.428)					

FE=Fisher Exact test *Significant (P <0.05)

Table (4): Self-care actions in alleviating dysphagia side effect of radiotherapy and its alleviating effect among the study group of head and neck cancer patients (post receiving self-care teaching module about radiation induced acute side effect (n=25)).

Self-care actions in alleviating dysphagia	The studied head and neck cancer patients who received self-care teaching module (n=25)					
	Immediate after delivery		One month after delivery		Three months after delivery	
	N	%	n	%	n	%
<u>Self-care actions in alleviating dysphagia:</u>						
•Chew sugar free gum to stimulate flow of saliva	25	100	25	100	25	100
•Moisten your lips continuously by using lip moistening	25	100	25	100	25	100
•Eat smooth foods such as yogurt and blend food with milk	25	100	25	100	25	100
•Drink acidic juice only in absence of mucositis such as orange and lemon juice	25	100	25	100	25	100
•Carry a water bottle and have regular sips throughout the day	25	100	25	100	25	100
•Cook the food very well and eat small frequent meals and snacks easier than three large meals	25	100	25	100	25	100
•Avoid sharp or crunchy foods such as potato chips, dry bread and nuts	25	100	25	100	25	100
•Occurrence of dermatitis:						
No	9	36.0	15	60.0	22	88.0
Yes	16	64.0	10	40.0	3	12.0
χ^2	14.280					
P	0.0008*					
<u>Alleviating effect of self-care actions of dysphagia:</u>						
Partially relieved	11	68.7	3	30.0	0	0
Completely relieved	5	31.3	7	70.0	3	100
χ^2	6.820					
P	0.033*					

*Significant (P<0.05)

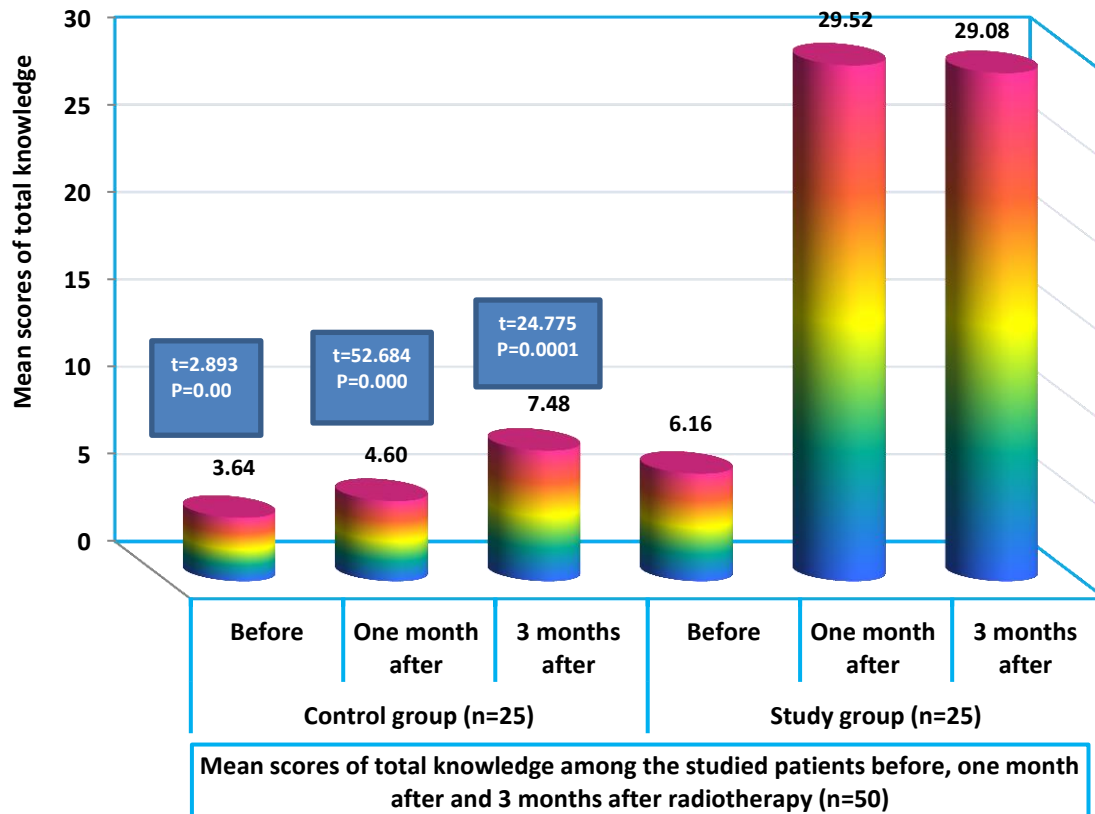


Figure (1): Mean scores of total knowledge of the studied head and neck cancer patients both (control and study groups) about radiation therapy and self-care of its acute side effects before and after one and three months of radiotherapy (n=50).

Discussion:

The improvement of patients' clinical outcomes is the main worry of medical experts when it comes to the usefulness of teaching self-care for managing acute side effects of radiation therapy for HNC patients. Patients with head and neck cancer who receive radiation therapy are vulnerable to acute side effects that can have a detrimental effect on them for a variety of reasons, including immune modulation brought on by cancer-related symptoms, the destruction of normal cells by genetic damage, acute soft tissue changes, and transient sensory disturbances at the radiation-treated area that cause an abrupt decline in the patient's oral health. (**Barnett et al., 2009, & Jellema et a., 2007**).

The process by which medical practitioners and others provide patients and their

caregivers with information that will change their health-related behaviors or enhance their health is known as patient education through the use of teaching modules. It is imperative to make every effort to guarantee that patients are not overloaded with knowledge at one time and that learning occurs in small phases.

Bastable (2019)

According to the results of the current study, the study group II had the highest incidence among the mean age group of fifty-one to less than or equal fifty-five years old, while the control group I had the highest percentage of HNC patients among the mean age group of thirty-one to less than or equal forty-one years old. This result went in the same line with **De Melo et al. (2013)** results indicated that patients under 60 years' old who have been diagnosed with head and neck cancer. In the other aspect

Mouw et al. (2008), mentioned that The age range of the patients was limited to 51 to 70 years old.

The results of the current study show that the majority of research participants were men with regard to the sex of the control and study groups. Many research study results **Kumar et al. (2008); Carvalho et al. (2004); Didolker et al. (2007); Bradley & Raghavan (2004)** had proven that a greater frequency of head and neck cancers in men compared to women. Nonetheless, there has been a notable rise in the prevalence of head and neck cancers among women in recent years, most likely as a result of changes in women's attitudes regarding smoking and alcohol consumption. **Parkin et al. (2005)**

In relation to current medical history data among control and study groups,

There was a significant difference between the control and study groups with regard to pain and mouth mass as the primary complaint of HNC, according to the study's findings, which show that more than half of the control group I and less than half of the study group II reported pain, while nearly 25% of the control group I and none of the study group II had mouth mass. This finding was similar to result findings of study was done by **Wan et al. (2011)**, who pointed out that with the use of the EORTC QLQ-C30 and QLQ-H&N35 Questionnaires, a significant number of HNC patients reported having pain and oral mass as their primary complaint.

Concerning type of head and neck cancer, the current study's findings show that, among the control and study groups, the highest incidence of cancer was laryngeal cancer, which was

followed by hypo-pharyngeal cancer. On the other hand, the lowest incidence of cancer was found in the nose, sinuses, maxilla, and finally, recurrent thyroid cancer, with equal percentages among the two groups. This finding was in disagreement with **Dobrossy (2005)**, who stated that most frequent tumor site was the oral cavity. Also, this finding was incongruent with **Hassanein et al. (2005)**, who concluded that the most commonly affected site was the floor of the mouth followed by the gingiva, the maxilla and the tongue.

As regards to grade of head and neck cancer, a biopsy pathological analysis of HNC patients revealed that a majority of the individuals under study had been diagnosed with grade II HNC, whilst a minority had been identified with grade I HNC. This finding was contradict with the study result done by **Rosenthal et al.**

(2015), who recorded that the majority of the patients were diagnosed as stage III of head and neck cancer and also this finding was in disagreement with **Stewart & Kleihues. (2003)** who concluded that The World Health Organization reports that a low percentage of head and neck cancer cases were diagnosed at an early stage I or II and a high frequency of cases were diagnosed at an advanced stage III.

In relation to Routine care and self-care actions in alleviating dermatitis side effect of radiotherapy, the current study's findings indicate that, when routine and self-care measures were followed immediately after radiation therapy, dermatitis entirely resolved in over half of the study group II, compared to none of the patients in the control group I. A month later, dermatitis completely resolved

in all patients in both groups. This indicates that after a month, the dermatitis in both groups was cured by either following regular care alone or in addition to the self-care techniques outlined in the researcher's booklet. This finding is accordance a study result was done by **Abbas & Bensadoun (2012)**, reported that Present dermatitis patients are primarily treated with palliative care, which includes dressing in appropriate clothing (cotton is preferred), reducing friction and exposure to the affected area, avoiding sun exposure and extreme temperatures, avoiding itching the affected area, and avoiding the use of products containing strong agents, such as some types of soap. **As regards self-care actions in alleviating dysphagia**, Approximately two thirds of study group II experienced a complete relief from dysphagia one month after

radiation, while all study group II patients experienced a complete recovery three months after radiation. This was found to have occurred when self-care actions following the teaching module were practiced immediately following radiotherapy. The present finding support research hypothesis that by adopting certain behaviors, such as eating soft, smooth meals, drinking liquids and soft foods with a straw, eating warm or room temperature foods to lessen discomfort, eat in tiny portions and chew them well. Eat small, frequent meals and snacks; stay away from spicy and acidic foods (tomatoes, citrus), as well as sharp and crunchy foods (potato chips); and abstain from alcohol and smoking.

Eisbruch et al. (2002); Eisbruch et al. (2007); Ertekin (2011) This finding was in the same line with a

study result was conducted by **Duarte et al. (2013)**, mentioned that recommendations given to HNC patients for dietary modifications such as decrease size and consistency of foods is essential to alleviate dysphagia.

Finally, according to the current study, patients' or their families' self-care practices for radiation-induced acute side effects, such as mucositis, dermatitis, and dysphagia, have a positive impact on preventing or minimizing these side effects and the discomfort they cause in patients, which in turn improves the functional ability of cancer patients and head injuries patients. Consequently, the hypothesis (1) of the current study was approved so we can confirm that adult patients with head and neck cancer undergoing radiation therapy who were received self-care teaching module have higher mean scores clinical outcomes

than control group and the study accepted the hypothesis.

Conclusion

The functional capacity and severity of radiation mucositis, dermatitis, and dysphagia were found to be better in study group II compared to control group I, with a statistically significant difference, according to the research's findings. Thus, the incidence, severity, and distress of acute side effects in patients with head and neck cancer receiving radiation therapy were reduced as a result of the self-care education module on radiation-induced acute side effects.

Recommendations

The recommendations that follow are focused on the following and are based on the results of the current study:

Patients with head and neck cancer should take care of themselves before to radiation treatment in order to reduce

anxiety about potential side effects and the procedure's impact on everyday activities.

- In order to offer correct and sufficient treatment for HNC patients, the radiation oncologist, physicist, and critical care oncology nurse should collaborate as a radiotherapy health team.

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