ISSN 2354-8428
e-ISSN 2598-8727

JURNAL KEPERAWATAN

KOMPREHENSIF

COMPREHENSIVE NURSING JOURNAL

Published by :

Sekolah Tinggi Ilmu Keperawatan
PPNI Jawa Barat

Vol. 9 No. 2, April 2023

JURNAL KEPERAWATAN KOMPREHENSIF	VOL. 9	NO. 2	Bandung April 2023	ISSN 2354-8428	e-ISSN 2598-8727

p-ISSN : 2354 8428 | e-ISSN: 2598 8727

Jurnal Keperawatan Komprehensif
Vol. 9 No. 2 April 2023

Research Article

Correlation Between Knowledge and Attitude to Oral Hygiene Management Behavior on Nasopharyngeal Cancer Patients Undergoing Radiation Therapy

Rita Anita[1]* | Widanarti Setyaningsih[2] | Sari Narulita[3]

[1]Dharmais Cancer Hospital, Jakarta, Indonesia

[2,3]Department of Nursing, Faculty of Nursing and Midwifery, Binawan University, Jakarta, Indonesia

***contact**

ritaanita24@gmail.com

Received : 25/01/2023
Revised : 01/04/2023
Accepted : 09/04/2023
Online : 30/04/2023
Published : 30/04/2023

Abstract

Aims: In nasopharyngeal cancer, radiotherapy is known as the treatment of choice by utilizing ionized radiation to eradicate all cancer cells in the nasopharynx and their metastases in the lymph nodes. This study aimed to determine the correlation between knowledge and attitude on oral hygiene management behavior among nasopharyngeal cancer patients undergoing radiation therapy in Jakarta.
Methods: A descriptive correlative with a cross-sectional. Using total sampling on 45 respondents at Radiotherapy Installation at Dharmais Cancer Hospital. The measurement using questionnaire to determine the correlation between knowledge and attitudes to oral hygiene management behavior on nasopharyngeal cancer patients. Fisher Exact Test was used for univariate and bivariate analysis.
Results: Up to 68.9% respondents had a good level of knowledge, while 77.8% respondents had a positive attitude and also had good behavior on oral hygiene management. Fisher Exact Test showed a correlation between knowledge on oral hygiene management behavior n nasopharyngeal cancer patients with radiation with a p–value = 0.002. The results also show a significant correlation between attitudes on oral hygiene management behavior in nasopharyngeal cancer patients with radiation with a p–value = 0.000.
Conclusion: Patients with good knowledge and positive attitudes have good oral hygiene behavior, whereas patients with poor knowledge and negative attitudes will behave with poor oral hygiene management. Increase the knowledge, attitudes, and behavior of oral hygiene management of NPC patients who will undergo radiation through the provision of continuing education from the beginning to the end of radiation. Provide educational media so that patients achieve a better understanding.

Keywords:
Knowledge; Attitude; Oral hygiene; *Nasopharyngeal Cancer*; Radiation

INTRODUCTION

Nasopharyngeal carcinoma (NPC) is an epithelial carcinoma, a cancer cell that begins in the cells that line an organ. It I s a type of cancer located in the head and neck, which arises from the mucous lining of the nasopharynx. In the nasopharynx, tumors are often found in the pharyngeal recess (Fossa of Ronssenmuller). Although derived from similar cell lines or tissues, nasopharyngeal carcinoma differs from other types of head and neck epithelial cancer (1). Based on data from the Global

https://doi.org/10.33755/jkk

p-ISSN : 2354 8428 | e-ISSN: 2598 8727

Jurnal Keperawatan Komprehensif
Vol. 9 No. 2 April 2023

Cancer Statistics, 2018, NPC ranked 25th of the 36 most cancer cases in the world, with 0.7% new cases (2).

The highest incidence of NPC in the world is in the southeastern Chinese province; 40-50 cases per 100,000 population. In Europe and North America this disease is very rare, with an incidence rate of about 1/100,000 of the population. Data from the Ministry of Health of the Republic of Indonesia, in 2019, NPC in Indonesia ranked 4th for the most cancer incidence after breast cancer, cervical cancer and lung cancer (3).

Radiotherapy is the treatment of choice for NPC by utilizing ionizing radiation to kill or eradicate all cancer cells in the nasopharynx and their metastases in the lymph nodes. At an early stage, radiotherapy is administered for curative purposes, as a single therapy. In addition, NPC treatment requires a combination of chemoradiation (4).

Intensity Modulated Radiation Therapy is an advanced radiation technique that is currently widely used for NPC treatment. However, the side effects of radiation on the oral cavity cannot be avoided because the radiation will not only kill cancer cells, but can damage healthy cells around them. The side effects of radiation can be different from one person to another, depending on the dose of perfraction radiation given, and other accompanying treatments such as chemotherapy (5). The side effects of radiation on the oral cavity can be minimized through good oral hygiene management.

The National Cancer Institute, 2016 and Sourati et al., 2017 (5) & (6) recommend good oral hygiene management including: dental screening, checking the condition of the mouth every day, adequate oral fluid intake, cleaning the mouth, teeth, gums and tongue, being careful with what to eat, avoid things that may injure, erode or burn the mouth, and avoid foods and drinks that contain high sugar. Patients must receive education about oral hygiene management before radiation therapy begins, with the aim of improving the patients' knowledge, so that they are better prepared in anticipating the side effects that may arise, comply with the treatment programs, and complete the radiation programs without delay. Discontinuation of radiation must be avoided, because delays can reduce treatment effectiveness and survival that affect the success of therapy (7).

Good oral care is fundamental in preventing and reducing the potential of oral complications in cancer therapy (8). The results of study conducted by Wulandari et al., 2018, (9) reveal that knowledge, attitudes, and sources of information are the determinant related to dental and oral hygiene care behavior. Meanwhile, studies by Rosita and Widyaningsih, 2017, (10) indicate that the patient's knowledge about the important aspects of the treatment being received can have an impact on his compliance with the medication behavior.

Rahayu et al., 2016 (11) in her study maintains that attitude as an evaluative response will appear when an individual is faced with a stimulus that requires a reaction. Meanwhile Sodri et al., 2018, (12) maintains that a person's behavior in terms of health can be determined by the level of his knowledge. Someone with a good level of knowledge will take appropriate action with regards to his disease.

Based on the above studies and the tendency of subjects or patients to adopt the habits or behaviors of other patients; patients meeting every day, exchanging experiences about their conditions, patients are not aware that the side effects they have are different from one to another. This study aims to find out a correlation between knowledge and attitudes and the behavior of oral hygiene management of nasopharyngeal cancer patients having radiation therapy.

METHODS

Study Design

This study used a descriptive correlative research design, using a cross sectional

https://doi.org/10.33755/jkk

p-ISSN : 2354 8428 | e-ISSN: 2598 8727

Jurnal Keperawatan Komprehensif
Vol. 9 No. 2 April 2023

research method to determine the correlation between knowledge and attitudes to oral hygiene management behavior on nasopharyngeal cancer patients.

Population

The population in this study were patients diagnosed with nasopharyngeal cancer undergoing loco-regional radiation at the Radiotherapy Installation at the Dharmais Cancer Hospital Jakarta within three months, from April to June 2020. So the researcher obtained a total population of 45 respondents.

Sample

The sampling technique in this study used the total sampling technique because the total population was less than 100 respondents, so it was considered that the entire population as a sampled (13). The inclusion criteria in this study were patients aged 20 years or over, diagnosed with nasopharyngeal cancer at all stages, were undergoing loco-regional radiation at the Radiotherapy Installation at Dharmais Cancer Hospital Jakarta, were not in pain and were willing to become research respondents.

The exclusion criteria in this study were nasopharyngeal cancer patients aged less than 20 years who were undergoing radiation due to metastases and patients with poor general condition.

Location and time

The study was conducted at the Radiotherapy Installation of the Dharmais Cancer Hospital, Jakarta. This research was conducted from July 2019 to July 2020.

Data collection

Before data collection, the researcher explained relevant information about this study, including the objectives, procedures, and research questionnaires, to each respondent. This research also maintains the anonymity and confidentiality of each respondent. Respondents must sign an informed consent.

Primary data is used as a source of data in this study. The primary data obtained through filling out questionnaires by respondents.

Research Intervention

Oral hygiene management behavior in nasopharyngeal cancer patients is the dependent variable of knowledge and attitudes because the level of knowledge and attitude status possessed by nasopharyngeal cancer patients greatly influences their oral hygiene management behavior. So the researchers decided to collect data by filling out questionnaires by the respondents to determine correlation between knowledge and attitudes to oral hygiene management behavior following the guidelines in the National Cancer Institute, 2016, and Sourati et al., 2017 (5) & (6).

Validity and reliability tests were carried out with 15 respondents, where the value of r_{value} > 0.4821 and α < 0.05, and Cronbach's Alpha: 0.961, thus the measuring instruments used are declared valid and reliable.

The research questionnaire form regarding the demographic characteristics of the respondents contains information regarding age, gender, and level of education. The variable knowledge of oral hygiene management during radiation contains 14 questions. If the result gains more than 50% (≥ 50%), it can be classified that the respondents have good knowledge about oral hygiene management, but if the score gains less than 50% (≤ 50%), the respondents have poor knowledge of oral hygiene management (14).

The attitude variable will be measured using a Likert scale in a questionnaire containing 14 structured questions. Each respondent was requested to give answers from strongly agree to strongly disagree regarding the respondent's attitude towards oral hygiene management during radiation. Each indicator answer will be scored 5 points for Strongly Agree; 4 points for Agree; 3 points for Neither Agree nor Disagree; 2 points for Disagree; and 1 point for Strongly Disagree. Based on the Likert scale, the score will be divided into the

https://doi.org/10.33755/jkk

p-ISSN : 2354 8428 | e-ISSN: 2598 8727

Jurnal Keperawatan Komprehensif
Vol. 9 No. 2 April 2023

positive if the score reaches more than 50% (≥ 50%) and the negative if the score is not more than 50% (≤ 50%) (15).

Fourteen questions that checked for validity and reliability were written in the questionnaire to measure respondents' behavioral variables regarding oral hygiene management during radiation using a Likert scale. Each favourabel indicator answer will be scored 3 points for Always; 2 points for Rarely; and 1 point for Never. While unfavourable indicator answer will be scored 3 points for Never; 2 points for Rarely; and 1 point for Always. Data will be clasify into good behavior and bad behavior. If the total score reaches more than 50% (≥ 50%), it is identified that the respondent has good oral hygiene management behavior while undergoing radiation. However, if the total score is less than 50% (≤ 50%), it is said that the respondent has poor oral hygiene management behavior while undergoing radiation (16).

Analysis data

After collected all the questionnaire from each respondent, the data was inputted and analyzed use SPSS for windows version 24 and the Fisher Exact Test method. To identify the correlation among variables in this study, bivariate analysis was used to determine the correlation between knowledge and attitudes to oral hygiene management behavior in nasopharyngeal cancer patients while univariate analysis was used to gain the results of the frequency distribution.

Ethical

Prior to data collection, the researcher submitted an application for Ethical Clearance with reference number 056/KEPK/V/2020 on March 2020, and sampling was carried out after an ethical clearance letter was obtained. Each respondent must sign the informed consent.

RESULTS

Study on NPC patients with loco-regional radiation was conducted at the Radiotherapy Installation of the Dharmais Cancer Hospital Jakarta, from April 2020 to June 2020, with the following results:

Table 1. Demographic Distribution of Respondents based on the Age of Nasopharyngeal Cancer Patients with Radiation at the Dharmais Cancer Hospital Jakarta Radiotherapy Installation from April to June 2020

Age Groups	Fequency (n)	Percentage (%)
20 – 29	6	13.3
30 – 39	9	20.0
40 – 49	15	33.3
50 – 59	11	24.4
60 – 69	3	6.7
70 – 79	1	2.2
Total	**45**	**100.0**

Source: Processed with SPSS 24

Based on table 1. it concluded that 33.3% of respondents are aged 40 to 49 years.

Table 2. Demographic Distribution of Respondents based on Gender of Nasopharyngeal Cancer Patients with Radiation at the Dharmais Cancer Hospital Jakarta Radiotherapy Installation from April to June 2020

Gender	Frequency (n)	Percentage (%)
Male	35	77.8
Female	10	22.8
Total	**45**	**100.0**

Source: Processed with SPSS 24

https://doi.org/10.33755/jkk

p-ISSN : 2354 8428 | e-ISSN: 2598 8727
Jurnal Keperawatan Komprehensif
Vol. 9 No. 2 April 2023

Based on the data above, it concluded that 77.8% of respondents are male.

Table 3. Demographic Distribution of Respondents based on Education Level of Nasopharyngeal Cancer Patients with Radiation at the Dharmais Cancer Hospital Jakarta Radiotherapy Installation from April to June 2020

Education Levels	Frequency (n)	Percentage (%)
Elementary School	7	15.6
Secondary School	10	22.2
High School	22	48.9
Associate	4	8.9
Bachelor	2	4.4
Total	**45**	**100.0**

Source: Processed with SPSS 24

It concluded from the data above that 48.9% of respondents are at high school education level.

Table 4. Distribution of Respondents based on Knowledge of Oral Hygiene Management

Knowledge	Frequency (n)	Percentage (%)
Poor	14	31.1
Good	31	68.9
Total	**45**	**100.0**

Source: Processed with SPSS 24

The results of measurement of the knowledge variable are shown in Table 4. The patients' knowledge of oral hygiene management was measured using a questionnaire containing questions about their oral hygiene management when they underwent radiation therapy. The level of knowledge is interpreted on a quantitative scale: good if the presentation result is ≥ 50%, and not good if the presentation result is ≤ 50%.

Table 5. Distribution of Respondents based on Attitudes to Oral Hygiene Management

Attitude	Frequency (n)	Percentage (%)
Negative	10	22.2
Positive	35	77.8
Total	**45**	**100,0**

Source: Processed with SPSS 24

The results of measurement of the attitude variable are shown in Table 5. The attitude was measured by asking the patients their opinion about oral hygiene management during radiation therapy. The measurement results are converted into percentages, as follows: scores ≤ 50% indicate negative measurement results and scores ≥ 50% indicate positive results.

Table 6. Distribution of Respondents based on Oral Hygiene Management Behavior

Behavior	Frequency (n)	Percentage (%)
Poor	10	22.2
Good	35	77.8
Total	**45**	**100.0**

Source: Processed with SPSS 24

https://doi.org/10.33755/jkk

p-ISSN : 2354 8428 | e-ISSN: 2598 8727

Jurnal Keperawatan Komprehensif
Vol. 9 No. 2 April 2023

The results of measurement of behavioral variables are shown in Table 6. The patients' behavior in oral hygiene management was measured by asking the patients questions about the activities they had performed in maintaining oral hygiene during radiation therapy. Assessment results: positive behavior if the value is > 50, and negative behavior if the value is ≤ 50.

Table 7. Correlation between Knowledge and Oral Hygiene Management Behavior

Knowledge	Behavior				Total		P-Value
	Poor		Good				
	%	N	%	N	%	N	
Poor	57.1	8	42.9	6	100	14	
Good	6.5	2	93.5	29	100	31	**0.002**
Total	**22.2**	**10**	**77.8**	**35**	**100**	**45**	

Source: Processed with SPSS 24

There is a significant correlation between knowledge and oral hygiene management behavior in NPC patients undergoing radiation therapy with a P-Value of 0.002, as in Table 7.

Table 8. Correlation between Attitudes and Oral Hygiene Management Behavior

Attitude	Behavior				Total		*P-Value*
	Poor		Good				
	%	N	%	N	%	N	
Negative	80.0	8	20.0	2	100	10	
Positive	5.7	2	94.3	33	100	35	**0.000**
Total	**22.2**	**10**	**77.8**	**35**	**100**	**45**	

Source: Processed with SPSS 24

This study shows a significant correlation between attitudes and oral hygiene management behavior in NPC patients undergoing radiation therapy, with a P-Value of 0.000, as in Table 8.

DISCUSSION

The results of study show that at the knowledge variable of 68.9%, the respondents have good oral hygiene management knowledge. Notoadmojo, 2014 maintains that "Knowledge is the result of knowing and occurs after the person concerned senses a certain object" (17). Before radiation therapy starts, NPC patients have received education about oral hygiene management. The important role of patients' knowledge in oral hygiene management is one of the success factors in radiotherapy treatment. Whereas 31.1% of patients had poor knowledge. This can be due to factors that can affect patients' readiness in receiving information. Low level of education, insufficient sources of information, differences in cultural backgrounds, and illness so that patients are unable to remember or store the information provided, can also be caused by anxiety about the therapy program that will be undertaken.

The results of measuring the attitude variable: 77.8% of NPC patients showed a positive attitude, and 22.2% of patients had a negative attitude. According to Wawan and Dewi (18) there are positive and negative attitudes. Positive attitude, has a tendency to take action as recommended. Meanwhile, a negative attitude will stay away or avoid. During radiation therapy the patient must be given a continuous stimulus and motivation that can change attitudes into action, so that the patient will follow the advice of medical staff.

https://doi.org/10.33755/jkk

p-ISSN : 2354 8428 | e-ISSN: 2598 8727

Jurnal Keperawatan Komprehensif
Vol. 9 No. 2 April 2023

In the behavior variable, it was apparent that during radiation therapy 77.8% of NPC patients had good oral hygiene management behavior. There was a belief about the benefits earned, and the consequences endured if the patients had bad oral hygiene management. Whereas 22.2% of patients had poor behavior in oral hygiene management, which could be due to a lack of supporting factors, and differences in background which include: habits, culture and socio-economic (16). Anwar in his research in 2012 maintains that the longer an individual suffers from an illness, the longer this individual will have experience of his illness (19). This experience can be used by the patient to change his behavior.

The results of this study indicate a significant correlation between knowledge and the oral hygiene management behavior of NPC patients undergoing radiation at a P-Value of 0.002, where patients who have good knowledge may have good behavior (17). On the other hand, patients with poor knowledge will have bad behavior. Meanwhile, Budiharto 2010 maintains that "behavior based on knowledge will be more lasting than behavior that is not based on knowledge" (20). This is line with the study in Ghana which reveals that patients who have better knowledge about the side effects of treatment tend to be compliant in undergoing treatment until completion (21).

Knowledge is an important domain in the formation of one's actions (17). Therefore, Rosita and Widyaningsih in their research in 2017 mentioned that the patients' knowledge about the important aspects of the treatment they are taking will have an impact on their compliance in treatment behavior (10). This important aspect is something that patients need to understand. In line with this study, patients with multiple sources of information will have better knowledge. Education provided in the pre-intra-post-radiation aims to improve the patients' knowledge so that they understand the importance of oral hygiene management behavior in maintaining optimal oral health status so that the side effects of radiation can be minimized.

In this study it can be said that the important role of NPC patients' knowledge in maintaining oral hygiene is one of the success factors to minimize the side effects of radiation. Therefore, education is part of the nursing care provided on an ongoing basis to NPC patients in pre-intra-post-radiation. Nurses should also pay attention to the patient's readiness to receive information, whether they have anxiety about the condition of their illness, so that what the nurses convey can be understood by the patient. The level of patient's knowledge about the care and treatment being undertaken is one of aspects in building the patient's will and ability, so that the patient will follow the medical advice and have radiation therapy according to the program.

This study also shows a significant correlation between attitudes and oral hygiene management behavior in NPC patients undergoing radiation, at a P-Value of 0.000. One of the factors that has a major influence on a person's behavior is socio-psychology consisting of attitudes, emotions, beliefs, habits and willingness. Attitudes will last longer than emotions and thoughts (17). The results of this study are in line with the research by Rahayu et al., (2016) (11) which maintain that attitudes to and behavior in maintaining dental and oral hygiene have a significant effect on periodontal health (p=0.001).

Attitude is a person's assessment on a stimulus or object, including the condition of his illness, towards which he will assess or behave. Attitudes and actual actions are often very different, because actual actions are determined not only by attitudes, but by various other factors (17). In line with this study, a person with positive attitude will behave well, so that stimulus is needed in changing and forming attitudes. Conversely, a person with negative attitude will lead to

https://doi.org/10.33755/jkk

p-ISSN : 2354 8428 | e-ISSN: 2598 8727

Jurnal Keperawatan Komprehensif
Vol. 9 No. 2 April 2023

negative behavior, so it is necessary to boost motivation and get information continuously in order to transform attitudes into actual behavior.

Oral hygiene management plays an important role in NPC patients with radiation, because oral side effects often occur during or after a radiation therapy, as a deterministic complication that cannot be avoided but can be minimized. Friemel, et al., 2016 maintain that poor oral hygiene habits are an independent risk factor for occurance of head and neck squamous cell carcinoma (22). Good dental care includes visits to the dentist, dental care and use of dental floss. Study by Liu et al., 2017 found the correlation between oral health and NPC risk (23). Overall study results conclude that poor oral health may increase the risk of NPC. Mirjalili, 2016, in his study maintains that there are simple steps that if taken timely will reduce the impact of ionizing radiation on the hard and soft tissues of the mouth, mainly in salivary glands, teeth (24). These steps include: eliminating sources of infection, gargling, administering fluoridation, hydration, stimulating the salivary glands. These actions may lower the severity of radiation and reduce the magnitude of side effects after radiation. This is in line with the study by Zhang et al., 2015 which aimed to determine the relationship between oral microbiota and caries irradiation, oral hygiene habits, dietary habits, use of fluoride products, and use of artificial saliva (25). In line with this study, good knowledge and positive attitudes will have a significant effect on good oral hygiene management behavior. Before radiation therapy begins, the patient's oral condition must be good, including wounds from dental treatment which must be healed. The patient must receive information about oral hygiene management the first time he comes for consultation. The information provided contains pre-intra-post-radiation oral hygiene management. This education is a preventive and promotive effort to minimize the side effects of radiation, and enhance the patient's compliance in undergoing treatment and improving his long-term oral health status.

In Hovan at al, 2018, the author maintains that good oral care is fundamental in preventing and reducing the potential for oral complications in cancer therapy (8). Good oral care includes: all dental, periodontal and soft tissue procedures, which will help maintain optimal oral health. This is in line with this study which maintains that there is a significant correlation between good knowledge, positive attitudes, and oral hygiene management behavior. Maintaining oral health is the main key to minimizing side effects, even though it is very difficult to do. Hence education about the side effects, prevention and how to deal with them must be provided continuously.

Study by Traktama and Sufiawati, 2016 reveals that the problems experienced by head and neck cancer patients with radiation are majority oral mucositis and oral candidiasis due to decreased cellular immunity of the oral cavity, which can result in delays of radiation therapy thereby affecting the treatment and increasing morbidity and mortality (26). This is in line with Tricia, 2012, which maintains that decreased immune function causes decrease of tolerance to chemotherapy and radiotherapy, which in turn impacts the length of treatment time and causes poor therapeutic results (27). This study also suggests a significant correlation between good knowledge and positive attitude and good oral hygiene management behavior, so that patients can complete the radiation program timely, without delay which affects the success of therapy and survival rate.

This is in line with the study by Kadrianto et al., 2015 which maintains that "all cancer patients should be given education before therapy begins to get maximum results, and to avoid secondary infections during cancer treatment. Patients must undergo pre-radiation dental treatment such as scalling and extraction of teeth that cannot be

https://doi.org/10.33755/jkk

p-ISSN : 2354 8428 | e-ISSN: 2598 8727

Jurnal Keperawatan Komprehensif
Vol. 9 No. 2 April 2023

restored" (28). This study even states that improving patient's knowledge before radiation begins will affect the behavior of oral hygiene management, in avoiding oral complications during treatment.

This is in line with a retrospective study by Alvarez et al., 2018 on head and neck tumor patients undergoing radiotherapy, chemotherapy or a combination of both, which aims to describe the protocols of radiotherapy management, regarding long-term oral health status (29). All patients followed the treatment protocols to ensure good oral conditions before the treatment starts in order to minimize local and systemic complications during and after treatment, and to determine the measures that can be taken to reduce side effects. This study also suggests the importance of providing similar information by health workers about the benefits of maintaining good oral health during radiation therapy, which plays an important role in achieving success during treatment so that oral health can be maintained optimally.

The results of this study are in line with all the results of the above studies that patients must be provided with knowledge through pre-intra-post-radiation education continuously using appropriate media, as this can improve their knowledge, willingness, and independence in maintaining oral health during radiation treatment. Management of oral hygiene carried out in this study is in line with all the studies above, in accordance with the guidelines in the National Cancer Institute, 2016 and in Sourati et al, 2017 which recommend good oral hygiene management for NPC patients undergoing radiation therapy. To maintain optimal oral health in pre-intra-post-radiation so as to minimize the side effects of radiation, patients can complete the radiation program timely, thereby increasing the survival rate.

Limitation Study

Due to the lack of nursing research in radiation oncology causes comparative data to be very limited and less specific.

CONCLUSION AND SUGGESTIONS

The side effects of radiation on the oral cavity cannot be avoided, but can be minimized through good oral hygiene management. Majority of the respondents has good level of knowledge and a positive attitude in oral hygiene management. There is a significant correlation between knowledge, attitude, and oral hygiene management behavior in nasopharyngeal cancer patients undergoing radiation therapy. The knowledge, attitudes and behavior of NPC patients in oral hygiene management can be improved through pre-intra-post-radiation education. NPC patients who have a good level of knowledge and positive attitude are expected to perform good oral hygiene management and comply with the radiation program, which affects the success of therapy. As for the nurses, please pay attention to the patients' level of readiness and interpretation in receiving the information, so the patients will achieve better understanding.

Conflict of Interest

The authors declare no conflict of interest associated with this sudy.

REFERENCES

1. Chen Y-P, Chan A T C, Le Q-T, Blanchard P, Ying Sun Y MJ. Nasopharyngeal Carcinoma. Lancet [Internet]. 2019;394(10192):64–80. Available from: https://doi.org/10.1016/S0140-6736(19)30956-0

p-ISSN : 2354 8428 | e-ISSN: 2598 8727

Jurnal Keperawatan Komprehensif
Vol. 9 No. 2 April 2023

2. Bray F, Ferlay J, Soerjomataram I, Siegel R L, Torre L A JA. Global cancer statistics 2018: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. CA Cancer J Clin. 2018;68(6):394–424.
3. Kementerian Kesehatan Republik Indonesia. Pedoman Nasional Pelayanan Kanker Nasofaring. Jakarta: Kementerian Kesehatan Republik Indonesia; 2019.
4. Susworo R KH. Radioterapi: Dasar–Dasar Radioterapi Tatalaksana Radioterapi Penyakit Kanker. II. Jakarta: UI Press; 2017.
5. National Cancer Institute. Radiation Therapy and You. Support for People with Cancer. United State of America: National Institutes of Health Publication; 2016.
6. Sourati A, Ameri A MM. Acute Side Effects of Radiation Therapy. Springer Cham; 2017.
7. Beech N, Robinson S, Porceddu S BM. Dental management of. Aust Dent J. 2014;59(1):20–8.
8. Hovan A, Carlisle S, Nguyen C YD. ORAL CARE OF THE CANCER PATIENT. Vancouver: BC Cancer; 2018.
9. Wulandari NNF, Handoko S A KDPY. Determinan perilaku perawatan kesehatan gigi dan mulut pada anak usia 12 tahun di wilayah kerja Puskesmas I Baturiti. Intisari Sains Medis. 2018;9(3):55–8.
10. Rosita I WS. GAMBARAN TINGKAT PENGETAHUAN TENTANG RADIOTERAPI PADA PASIEN KANKER NASOFARING DI RSUD DR MOEWARDI SURAKARTA. J Jur Keperawatan. 2017;
11. Rahayu, Widiati C., Widyanti S N. Hubungan antara Pengetahuan, Sikap, dan Perilaku terhadap Pemeliharaan Kebersihan Gigi dan Mulut dengan Status Kesehatan Periodontal Pra Lansia di Posbindu Kecamatan Indihiang Kota Tasikmalaya. Maj Kedokt Gigi Indones. 2016;21(1):27.
12. Sodri A J, Adhani R HI. HUBUNGAN PENGETAHUAN, SIKAP DAN TINDAKAN KESEHATAN GIGI DAN MULUT DENGAN STATUS KEBERSIHAN RONGGA MULUT PEROKOK. DENTIN J Kedokt GIGI. 2018;II(1).
13. Sugiyono. Metode Penelitian Pendidikan Pendekatan Kuantitatif, Kualitatif, dan R&D. Bandung: Alfabeta; 2017.
14. Budiman; Agus R. Kapita Selekta Kuesioner Pengetahuan dan Sikap dalam Penelitian Kesehatan. Jakarta: Salemba Medika; 2013.
15. Sunaryo. Psikologi untuk Keperawatan Edisi 2. Jakarta: EGC; 2013.
16. S. A. Sikap Manusia Teori dan Pengukurannya. Jakarta: Pustaka Pelajar; 2011.
17. S. N. Ilmu Perilaku Kesehatan. Jakarta: Rineka Cipta; 2014.
18. Wawan, A, Dewi M. Teori dan Pengukuran Pengetahuan, Sikap, dan Perilaku Manusia. Yogyakarta: Nuha Medika; 2011.
19. Anwar M, Green J NP. Health-seeking Behaviour in Pakistan: A Narrative Review of the Existing Literature. Public Health. 2012;126(6):507–17.
20. Budiharto. Pengantar Ilmu Perilaku Kesehatan dan Pendidikan Kesehatan Gigi. JAKARTA SELATAN: EGC; 2010. 17–21 p.
21. Kyei, Vormawor K A, Opoku R, Vanderpuye S Y V. World Journal of Epidemiology and Cancer Prevention Knowledge, Attitudes and Perceptions of Head and Neck Radiotherapy in Ghana. 2015;
22. Friemel, Foraita J, Günther R, Heibeck K, Günther M, Pflueger F, Pohlabeln M, Behrens H, Bullerdiek

https://doi.org/10.33755/jkk

p-ISSN : 2354 8428 | e-ISSN: 2598 8727

Jurnal Keperawatan Komprehensif
Vol. 9 No. 2 April 2023

T, Nimzyk J, Ahrens R W. Pretreatment oral hygiene habits and survival of head and neck squamous cell carcinoma (HNSCC) patients. BMC Oral Health [Internet]. 2016;16(1):1–9. Available from: http://dx.doi.org/10.1186/s12903-016-0185-0

23. Liu, Chang Z ET, Liu, Cai Q, Zhang Y, Chen Z, Xie G, Cao S H, Shao S M, Jia J Y, Zheng W H, Liao Y, Chen J, Ernberg Y, Vaughan I, Adami T L, Huang H O, Zeng G, Zeng Y, Ye Y X W. Oral hygiene and Risk of Nasopharyngeal Carcinoma - A Population-based Case-control Study in China. Cancer Epidemiol Biomarkers Prev. 2017;25(8):1201–7.
24. N. M. The supportive Oral measures preceding radiation therapy in patients diagnosed with nasopharyngeal carcinoma. In: 8th International Conference and Exhibition on Dentistry & Oral Care. Oral Health Dent Management; 2016. p. 24522.
25. Zhang, Liu J, Liang H, Zhang X, Wang M, Peng R, Li G J. Investigation of salivary function and oral microbiota of radiation caries-free people with nasopharyngeal carcinoma. PLoS One. 2015;10(4):1–15.
26. Traktama, Sufiawati D O I. Oral mucositis severity in patient with head and neck cancer undergoing chemotherapy and/or radiotherapy. Maj Kedokt Gigi Indones. 2018;4(1):52.
27. Tricia F, Rahaju P SR. Hubungan status nutrisi penderita karsinoma nasofaring stadium lanjut dengan kejadian mukositis sesudah radioterapi. Oto Rhino Laryngol Indones. 2012;42(1):53–63.
28. Kadrianto, Noegroho T H SH. Dentists' Role in Diagnosis and Management of Oral Involvement of Nasopharyngeal Carcinoma: Serial Case Report. J Dent Indones. 2008;22(1):29–36.
29. Alvarez P B, Perez-Sayáns M, Alves M G O, Torreira M G, Iruegas M E P, Carrión AGAB. Dental Management Prior to Radiation Therapy in Patients with Head and Neck Cancer. Indian J Cancer. 2018;55(3).