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**Original Articles**

**AGE, EDUCATIONAL LEVEL, ANXIETY LEVEL, AND SLEEP PATTERNS OF  
CERVICAL CANCER PATIENTS UNDERGOING EXTERNAL RADIOTHERAPY  
TREATMENT**

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**ABSTRACT**

**Background:** Treatment for cervical cancer includes surgery, radiotherapy or chemotherapy. Quite a lot of cancer sufferers who go to hospitals receive radiation therapy. The diagnosis and treatment of cervical cancer is always accompanied by psychological challenges, namely anxiety, which causes sleep pattern disturbances in the patient.

**Objective:** This study aimed to determine the relationship between age, education level, anxiety level, and sleep patterns in cervical cancer patients undergoing external radiotherapy treatment.

**Method:** The research method used a cross sectional approach design by collecting data on independent variables and dependent variables. The sampling technique in this research used Total Sampling. The sample consisted of 20 cervical cancer respondents who underwent external radiation, then the data collected was processed using the Spearman Rho test.

**Results:** Based on the research results, it was found that only anxiety level was related to sleep pattern ( $r = .519$ ,  $p < .05$ ). Meanwhile, age and education level have no relationship with sleep patterns.

**Conclusion:** The anxiety level of cervical cancer patients in facing external radiotherapy treatment can affect their sleep patterns, so understanding is needed by a health worker to reduce the patient's anxiety.

**Keywords:** Age, Educational Level, Anxiety Level, Sleep Patterns, External Radiotherapy Treatment.

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**INTRODUCTION**

Cervical cancer is currently one of the causes of death for women in various countries (Derks et al, 2017). Cervical cancer does not cause symptoms in the early stages so diagnosis is often delayed in advanced stages (Vermandere et al, 2014). Diagnosing and treating cervical cancer is always accompanied by psychological challenges (Khalil et al, 2015). Cervical cancer treatment programs, whether in the form of surgery, radiotherapy or chemotherapy, are known to have toxicity and side effects. Various literature suggests negative effects on physical and

psychological function that give rise to patient rejection (Czerw, Bilinska and Deptala, 2016). Radiotherapy or also known as radiation therapy is therapy using radiation that comes from radioactive energy. Quite a lot of cancer sufferers who go to hospitals receive radiation therapy. Sometimes the radiation received is a single therapy, sometimes in combination with chemotherapy or surgery. The approach to radiotherapy techniques can be done in a simpler way, namely radiation using a radiation source in the form of X-rays, gamma rays or other types of radiation. Irradiation is carried out periodically over a relatively long period of time. Another side effect of using radiotherapy is that patients will experience fatigue after radiotherapy (Mukhlis Akhadi, 2020). Patients who will undergo radiation treatment often experience disturbed sleep patterns, so this makes researchers interested in examining whether there is a relationship between anxiety and the sleep patterns of patients who will undergo external radiation therapy. It is very important to know the quality of the patient's sleep because this will be the basis for planning nursing care for cervical cancer patients who will undergo external radiation therapy.

WHO (2018) states that cervical cancer is the fourth leading cause of death in women worldwide, with an estimated 570,000 new cases in 2018 or 6.6% of all cancers in women. Around 90% of deaths from cervical cancer occur in low and middle income countries (WHO, 2018a). The American Cancer Society's estimates that in 2018 there will be around 13,240 new cases of invasive cervical cancer diagnosed, around 4,170 women will die from cervical cancer (American Society Cancer, 2018). Data from Global Burden Cancer (GLOBOCAN), the International Agency for Research on Cancer (IARC) shows that in 2012 the incidence of cervical cancer throughout the world was 16 per 100,000 population, the country with the highest rate of cervical cancer sufferers was Malawi with a prevalence of 75 per 100,000 population. followed by Mozambique and Comoros. Meanwhile in Indonesia, there are 21,000 cases of cervical cancer each year, making it the second highest in the world (CNN Indonesia, 2017). One of the causes of the high incidence of cervical cancer in Indonesia is the lack of early monitoring (Februanti, 2012; CNN Indonesia, 2017). The Indonesian Gynecological Oncology Association (HOGI) or Indonesian Society of Gynecologic Oncology (INASGO) has collected data from several cancer center hospitals in Indonesia in the form of a Cancer Registry. Based on this data, cervical cancer ranks highest among gynecological cancers, namely 4,345 cases in a period of 3 years (2016-2018), followed by ovarian cancer, endometrial cancer and malignant trophoblastic disease (PTM). In the period 2016 to 2018 the highest number of cases was in the 36-55 year age group (2,731 cases) while the lowest number of cases was in the group of children aged 0-17 years (1 case).

According to research conducted by Stuart and Larasia (2009), anxiety is influenced by several factors that can influence cervical cancer patients. Anxiety is divided into two parts, namely predisposing factors and precipitation factors. Predisposing factors consist of psychoanalytic views, interpersonal views, behavioral views, family studies, and biological studies. Precipitation factors are anxiety that is felt originating from internal and external sources which are grouped into two categories, namely threats to physical integrity and self-systems. Sleep quality is a phenomenon that has been defined and measured objectively and subjectively, where subjective measurements of sleep quality can be measured using the

Pittsburgh Sleep Quality Index (PSQI) questionnaire (Buysse, Charles, Timothy, Susan and David, 1989).

From the data above, researchers can provide suggestions to reduce anxiety and disturb patients' sleep patterns. New patients who will undergo radiation treatment will be given education about the course of radiation and side effects during radiation treatment so that patients have an idea of radiation treatment and know what effects it causes during the radiation procedure later. It is hoped that providing this education will reduce patient anxiety which has an impact on the patient's sleep patterns.

## **METHODS**

### ***Study Design***

The research design used is analytical descriptive research with a cross-sectional approach.

### ***Settings***

This research was carried out for 3 weeks from 19 July 2021 to 6 August 2021 at the Adi Husada Cancer Center, Surabaya.

### ***Research Subject***

The target population in this study was all cervical cancer patients who underwent external radiation treatment at the Adi Husada Cancer Center, Surabaya, totaling 20 patients. The sampling technique used in this study was total sampling, so the number of samples in this study was 20 patients.

### ***Instrument***

This research uses a research instrument in the form of a questionnaire. In assessing the anxiety level of respondents, the researchers used the Hamilton Anxiety Rating Scale (HARS). Meanwhile, for assessing sleep patterns, the researchers used the Pittsburgh Sleep Quality Index (PSQI). For age and education level, the researchers obtained it through demographic data from the respondents.

### ***Data Collection***

The data collection process for this research began with arranging permits for research implementation, both from the College of Health Sciences of Husada Jombang and Director of Adi Husada Hospital Surabaya for research permits at the Adi Husada Cancer Center, Surabaya. After obtaining permission for implementation, the researchers began collecting data by distributing questionnaires to respondents. Before asking respondents to fill out the research questionnaire, the researchers asked respondents for their consent to be willing to be subjects in this research by first providing an explanation regarding the purpose of conducting the research, the data collection process, and the rights of respondents as subjects in this research.

### ***Data Analysis***

In fulfilling the research objectives, the researchers carried out data analysis using two methods, namely univariate data analysis and bivariate data analysis. Univariate data analysis carried out by the researchers was in the form of a frequency distribution of the characteristics of the respondents in this study. Bivariate data analysis was carried out by researchers using the Spearman Rho statistical test with a significance value of  $\alpha = .05$ .

**Ethical Consideration**

This research has been declared to have passed the ethical test by the Health Research Ethics Committee of the College of Health Sciences of Husada Jombang with number 0022-KEPKSHJ.

**RESULTS***Characteristics of Respondent*

**Table 1.** Distribution Frequency of Respondents based on Age, Educational Level, Occupational, Anxiety Level, and Sleep Patterns in the Adi Husada Cancer Center, Surabaya on July 19, 2021 until August 06, 2021 (n = 20).

Characteristics of Respondent	Frequency (f)	Percentage (%)
<b>Age</b>		
41-50 years	9	45.0
51-60 years	9	45.0
≥ 61 years	2	10.0
<b>Total</b>	<b>20</b>	<b>100.00</b>
<b>Educational Level</b>		
No School	1	5.0
Elementary School	2	10.0
Junior High School	1	5.0
Senior High School	11	55.0
College/ University	5	25.0
<b>Total</b>	<b>20</b>	<b>100.00</b>
<b>Occupational</b>		
Housewife	14	70.0
Farmer	1	5.0
Self-employed	4	20.0
Private Sector Employee	1	5.0
<b>Total</b>	<b>20</b>	<b>100.00</b>
<b>Anxiety Level</b>		
Moderate	3	15.0
Severe	9	45.0
Very Severe	8	40.0
<b>Total</b>	<b>36</b>	<b>100.00</b>
<b>Sleep Patterns</b>		
Good	4	20.0
Poor	16	80.0
<b>Total</b>	<b>20</b>	<b>100.0</b>

**Sources:** Primary Research Data, 2023.

Based on the research data above, it was found that the majority of respondents in this study were in 2 age groups, namely 41-50 years and 51-60 years, each with 9 respondents (45.0%). The majority of respondents had Senior High School education, 11 respondents (55.0%). The type of work of the most respondents was Housewife with 14 respondents

(70.0%). Most of the respondents had a severe level of anxiety, 9 respondents (45.0%) and 16 respondents (80.0%) had poor sleep patterns.

*Examination of the Relationship between Age, Educational Level, Anxiety Level, and Sleep Patterns in the Adi Husada Cancer Center, Surabaya on July 19, 2021 until August 06, 2021 Using Spearman Rho Test*

**Table 2.** Examination of the Relationship between Age, Educational Level, Anxiety Level, and Sleep Patterns in the Adi Husada Cancer Center, Surabaya on July 19, 2021 until August 06, 2021 Using Spearman Rho Test (n = 20).

	Age	Educational Level	Anxiety Level
Educational Level	-.255		
Anxiety Level	-.259	.144	
Sleep Patterns	-.272	-.144	.519*

Sources: Primary Research Data, 2023.

Based on the data from the Spearman Rho statistical test above, it was found that only anxiety level was related to sleep patterns ( $r = .519, p < .05$ ).

## DISCUSSION

The anxiety felt by cancer patients is an excessive emotional reaction or dull depression and a sensitive context response (Clift 2011). According to Brunnert & Suddart's opinion in the title "Profession" Widayastuti (2015) anxiety is a common reaction that occurs to the disease which is felt as a threat to life, according to the view that has been carried out by interpersonal because of anxiety that arises as a result of feelings of fear.

In the opinion of researchers, cervical cancer patients undergoing external radiation treatment have different levels of anxiety depending on various factors that cause this anxiety, such as age, age and education. This is in accordance with research conducted on cervical cancer patients undergoing external radiation treatment at the Adi Husada Cancer Center, most of the anxiety occurred at the age of 41-65 years. This is because the older a person gets; it does not guarantee that his personality will get better and increasing age also affects the patient's personal maturity. the emergence of anxiety experienced by respondents when undergoing radiation, where respondents said they were anxious about undergoing radiation or about to undergo radiation such as anxiety about the effects of radiation, the anxiety felt by respondents also had an impact on the patient's recovery because if the patient always experiences anxiety then it is possible that the respondent could stop the radiation, the symptoms felt Patients who experience anxiety such as restlessness, difficulty sleeping, difficulty concentrating, decreased appetite.

According to Akman et al, (2015) sleep disorders are known to affect the quality of life and psychology of cancer sufferers. The need for sleep is a basic human need that must be fulfilled and is an integral part of basic human needs through a biological process that is

common to all people. Sleep is not always perfect because it is believed that there will be many changes in status during the duration of sleep, whether in perception or reaction to the sleep environment, which will result in a decrease in sleep function (Kozier, Glenora, Audrey, and Shirlee, 2011). The impact of cancer is physical, psychological, social and spiritual changes which cause a decrease in the quality of sleep in cancer patients. Factors that affect sleep quality are depression, anxiety, fatigue and pain (Wiyata nursing journal Vol 1 No 1, 2020).

In the opinion of researchers, cervical cancer patients undergoing external radiation treatment have different sleep patterns. These sleep patterns can be influenced by various factors such as medical conditions and environmental conditions. This will affect the patient's sleep pattern; an unfavorable environment also greatly influences the patient's sleep pattern.

Good quality sleep is really needed by the patient's body, a sick body will have difficulty initiating and maintaining sleep, if the body experiences a lack of sleep then the body will experience decreased endurance, decreased daily activities, feel tired and can have an impact on psychological health and also has an impact on the recovery of the respondent's illness. In research that has been carried out, it was found that cervical cancer patients underwent radiation.

Cervical cancer patients who undergo external radiation have very high levels of anxiety and poor sleep patterns, this is because many cervical cancer patients who undergo external radiation are worried about the effects of the radiation, the anxiety that occurs in respondents is also influenced by age and environment, disorders Anxiety can occur at all ages, more often in adulthood and more often in women. Anxiety that occurs in respondents also results in sleep pattern disturbances in these respondents. These sleep pattern disturbances are also influenced by medical and environmental conditions. The occurrence of sleep pattern disturbances that are related to conditions. medical conditions are often found although the incidence of disorders varies for each medical condition. As a hospital nurse, it is necessary to create a good and comfortable environment for patients so that there is no disruption to sleep patterns in these patients and it is necessary for nurses to provide education about radiation and the effects of radiation so that there is no anxiety in patients.

## **CONCLUSION**

The results showed that only the level of anxiety had a positive relationship with the sleep patterns of cervical cancer patients undergoing external radiotherapy treatment at the Adi Husada Cancer Center ( $r = .519, p < .05$ ).

## **SUGGESTION**

The results of this research can be used to increase researchers' insight and experience and determine the relationship between anxiety levels and sleep patterns in cervical cancer patients undergoing external radiation treatment. Apart from that, the results of this research can be used as additional information and enrich reading material for health workers, especially about anxiety levels and sleep patterns in cervical cancer patients who are undergoing external radiation treatment, so that health workers can pay attention to these two things in order to increase the success of treatment. ongoing external radiation.

## LIMITATION

There are no limitations in carrying out this research.

## REFERENCES

- Ahmad, Mukhlisiana. (2020). *Perilaku Pencegahan Kanker Serviks*. Bandung: Media Sains Indonesia.
- Akhadi, Mukhlis. (2020). *Sinar-X Menjawab Masalah Kesehatan*. Yogyakarta: Deepublish Plubisher.
- Amalia. (2009). *Mengobati Kanker Serviks dan 33 Jenis Kanker Lainnya*. Jogjakarta: Landscape.
- Ardiansyah, Azril Okta. (2017). *Surgery Mapping Seri Onkologi: Dasar-Dasar Onkologi*. Surabaya: Airlangga University.
- Buysse, J. D. Reynold III, C. F., Monk, T. H., Bermas, S. R., Kupfer, D. J (1989). Pittsburgh Sleep Quality Index (PSQI). *Psychiatry Research*, 28, 193-213.
- Derks, M. Et al. (2017). "long-Term Morbidity and Quality of Life in Cervical cancer survivors A multicenter Comparison Between Surgery and Radiotherapy as Primary Treatment". *International Journal of Gynecological Cancer*. 27 (2), pp. 350-356. doi: 10.1097/IGC.
- Februanti, Sofia. (2019). *Asuhan Keperawatan Pada Pasien Kanker Serviks*. Yogyakarta: Deepublish Plubisher.
- Hidayat, Taufik, S.E., M.SI. Nina Istiadah, S.T, (2011). *Panduan Lengkap Menguasai SPSS 19 Untuk Mengelolah Data Statistik Penelitian*. Jakarta: Media Kita.
- Khalil, J. Et al. (2015). "(Impact of cervical cancer on quality of life: beyond the short term (Result from a single institution)". *Gynecologic Oncology Research and Practice*. *Gynecologic Oncology Researc and Practice*, pp. I-7. Doi. 10.1186/s40661-015-00114-4.
- Kozier et al. (2010). *Buku Ajar Fundamental Keperawatn Edisi 7, Volume 1*. Jakarta: EGC.
- Lyndon, Saputra (2013). *Pengantar Kebutuhan Dasar Manusia*. Jakarta: EGC.
- Nurwijaya, Hartati, Dra. DR. Dr Andrijono. Prof. Dr H. Ksuheimi. (2010). *Cegah Dan Deteksi Kanker Serviks*. Jakarta: PT Elex Media Komputindo.
- Prof. Suhatno, dr, SP.OG (K). et al. (2020). *Panduan Tatalaksana Kanker Ginekologi*. Surabaya: Scopindo Media Pustaka.
- Rasjidi, I. (2009). *Deteksi Dini Dan Pencegahan Kanker Pada Wanita*. Jakarta: Sagung Seto.
- Zuhri, Tri Wahyuni. Indscript Creative. (2014). *Kanker Bukan Akhir Dunia*. Jakarta: PT Elex Media Komputindo.