



THE RELATIONSHIP BETWEEN ANXIETY AND SLEEP QUALITY IN CHEMOTHERAPY PATIENTS

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ABSTRACT

KEYWORDS

Breast Cancer, Chemotherapy, Anxiety, sleep quality.

ARTICLE INFO

Accepted: March, 10th 2022

Revised: March, 12th 2022

Approved: March, 13th 2022

Cancer is the number one cause of death in the world at the end of this century. The impact of the treatment of breast cancer patients on the psychological aspects of experiencing anxiety, and disturbed sleep patterns. The lower the anxiety experienced, the better the quality of sleep, and vice versa. The aim of the study was to analyze the relationship between anxiety levels and patient sleep quality. This research method is cross section with sampling using Accidental Sampling technique. Respondents were 40 breast cancer patients who underwent chemotherapy. The results showed that 82.5% of patients experienced severe anxiety 82.5% and 82.5% had poor sleep quality. The Spearman Rank test results show a correlation value (r) of 0.342 (34.2%) and a p-value of 0.031. P value < (0.05). There is a relationship between anxiety and sleep quality in patients undergoing chemotherapy. It is hoped that it can provide information for health care institutions, which can then be developed for the provision of nursing care in meeting the need for quality sleep for chemotherapy patients.

INTRODUCTION

According to the World Health Organization, cancer will be the leading cause of death by the end of the century. Cancer will be the greatest impediment to humans living longer lives. Breast cancer is the most frequent type of cancer, according to data collected from 185 countries. According to the findings of the survey, lung cancer is the deadliest cancer, accounting for 1.8 million fatalities or 18.4 percent of all deaths, while breast cancer is the second most common cancer in women, though men can also acquire breast cancer. The effects of breast cancer treatment for patients on the psychological components are anxiety and sleep pattern disruption.

Patients with breast cancer must receive medical treatment in order to recover. Chemotherapy is one of the suggested therapies. Chemotherapy is an anti-cancer treatment that kills tumor cells by interfering with their function and reproduction in order to heal, regulate, or relieve symptoms. Chemotherapy is the practice of providing anti-cancer medications in the form of liquid pills, capsules, or infusions with the goal of killing cancer cells. Chemotherapy patients frequently experience anxiety and sleep difficulties, which is more common in breast cancer patients having chemotherapy in the first, second, and third phases. As a nurse, you can provide treatment by educating patients about emotional support, assessing patient requirements, anxieties, and coping techniques (Oetami, 2014)

Anxiety is a negative emotional reaction to real or imagined threat that is accompanied by changes in the autonomic nervous system and subjective tension, fear, and anxiety sensations. Anxiety can have a harmful influence on breast cancer sufferers. Anxiety in breast cancer patients can worsen pain, make it difficult to sleep, increase nausea and vomiting after chemotherapy, and affect their overall quality of life. Anxiety experienced by

cancer patients during chemotherapy might negatively impair the treatment process as well as medical and psychological rehabilitation (Bintang, 2012).

Anxiety is classified into multiple levels, each with its own set of traits and manifestations. Personal maturity, understanding of how to deal with tension, self-esteem, and coping techniques all play a role in how anxiety manifests. Client's basic requirements are addressed through nursing procedural approaches, concepts, and applications. Mild anxiety, moderate anxiety, severe anxiety, very severe anxiety, or panics are the four types of anxiety. Anxiety does not address a person's mental problems; instead, it burns more energy and disrupts sleep habits. A person who has poor sleep quality will have a lower quality of life. A person's sleep needs in a day can be different, influenced by the demands in life and the work they do every day (Afrianto, 2018).

Sleep quality is a state of sleep experienced by an individual that results in freshness and fitness when awakened. Sleep quality includes both quantitative and qualitative aspects of sleep, such as sleep duration, sleep latency, and subjective aspects of sleep. Good sleep quality and poor sleep quality using assessments, namely: the time it takes to start sleeping (sleep latency), sleep duration (sleep duration), the percentage of sleep time spent in bed (sleep efficiency), sleep disturbance experienced at night (sleep disturbance). So that everyone's ability to maintain a state of sleep and to get the appropriate stages of REM and NREM sleep (Hastuti., 2016).

RSUD dr. Saiful Anwar Malang is one of the regional hospitals that is able to provide chemotherapy treatment for cancer patients. The data obtained from the medical records of RSUD dr. Saiful Anwar Malang, that for patients suffering from cancer in 2019 there were 795 patients and 423 patients underwent chemotherapy. In a preliminary study conducted from December 28, 2020 to January 8, 2021, data from medical records showed that from August 2020 to January 2021 there were 565 patients suffering from cancer and 448 of them underwent chemotherapy. From the results of preliminary observations conducted on ten patients undergoing chemotherapy, it was found that six out of ten patients had received chemotherapy for the first time, while four out of ten patients had undergone chemotherapy more than once.

The results of preliminary observations showed that patients who were about to undergo chemotherapy said they had difficulty sleeping and were anxious. On average, new patients who will undergo chemotherapy say they are afraid and worried about the effects of chemotherapy they will experience. Seven out of ten patients said they experienced anxiety because they were afraid of the disease they were currently suffering from and three of them claimed to experience sleep disturbances because they were worried about their illness and the area around the eyes looked black and often yawned.

This study is in line with Melanie & Jamaludin (2018), which stated that more than half of respondents (52.1%) experienced moderate levels of anxiety and more than half of respondents (64.6%) experienced poor sleep quality. The study also stated that there was a relationship between anxiety levels and sleep quality in preoperative *sectio caesarea patients* in the Burangrang ward of the Dustira Level II Hospital. The results of this study are in line with the research of Harahap et al. (2021), which found that there was a relationship between anxiety levels and sleep quality of lung disease patients in Arifin Achmad Hospital, Riau Province. Thus, the researcher interested in exploring the anxiety and sleep quality in chemotherapy patient in general.

The lower the anxiety experienced, the better the sleep quality will be, and the higher the anxiety level, the worse the sleep quality will be (Laia, 2019). The purpose of this study was to determine the relationship between anxieties and sleep quality in patients undergoing chemotherapy at RSUD Dr. Saiful Anwar Malang. This research is expected to add other

information concerning anxiety and sleep quality in chemotherapy patient to developing its intervention.

METHOD RESEARCH

The research approach method used is a quantitative approach. The design used in this research is a correlation study, which is a study to study the relationship between two variables. This study will obtain the prevalence or effect of a phenomenon (dependent variable) associated with the cause (independent variable). The independent variable in this study was the level of anxiety and the dependent variable in this study was sleep quality.

The populations in this study were all chemotherapy patients in the Chemotherapy Action Room at dr. Saiful Anwar Malang in a period of 2 months, namely in July and August 2021, totaling 80 respondents. While the number of samples calculated based on the Slovin formula obtained as many as 40 patients with inclusion criteria in this study were willing to be respondents, the first chemotherapy patient to the 3rd chemotherapy at RSUD dr. Saiful Anwar Malang and the age of the respondent is 40-70 years. While the exclusion criteria are patients who have diseases or other factors that can cause difficulty sleeping. The Sampling took from accidental sampling method. The test used is the Pearson correlation test if the data meets the assumption of normality and the Spearman Rank correlation test if it does not meet the normality assumption.

RESULT AND DISCUSSION

Research result

This research was conducted. The location of this research was carried out in the Chemotherapy Action Room, RSUD Dr. Saiful Anwar Malang. RSUD dr Saiful Anwar is a type A East Java Provincial Hospital in Malang. The research was conducted from July 15, 2021 to August 20, 2021. The characteristics of the respondents in this study were collected to determine the description of the respondents who were appointed as research subjects. The characteristics of the respondents are shown in Table 1.

Table 1 show almost half of respondents aged 41-50 years, namely as many as 15 respondents 37.5%. Almost half of the respondents (40%) underwent 1st chemotherapy. Based on the latest level of education, it was found that almost half of the respondents, namely 15 (37.5%) graduated from junior high school and most of the respondents worked as a private sector, namely 28 (70%) respondents.

Table 1. Distribution of respondent characteristic data

Characteristics of Respondents	Frequency (n)	Percentage (%)
Age		
41-50 years old	15	37.5
51-60 years old	14	35
> 60 years old	11	27.5
Total	40	100
Chemotherapy		
1	16	40
2	11	27.5
3	13	32.5
Total	40	100

Last education		
SD	6	15
junior high school	15	37.5
senior High School	14	35
College	5	12.5
Total	40	100
Profession		
Private	28	70
Housewife	7	17.5
civil servant	5	12.5
Total	40	100

Soure: processed data

Table 2. Distribution of Patient Anxiety Levels

Anxiety Level	Frequency (n)	Percentage (%)
Light	0	0
Currently	7	17.5
Heavy	33	82.5
Very heavy	0	0
Total	40	100

Soure: processed data

Based on Table 2, it is known that most of the respondents (82.5%) have severe anxiety, while the rest have moderate anxiety.

Table 3. Distribution of Patient Sleep Quality

Sleep Quality	Frequency (n)	Percentage (%)
Bad	33	82.5
Well	7	17.5
Total	40	100

Soure: processed data

Based on Table 3, it is known that most of the respondents (82.5%) have poor sleep quality, while the rest have good sleep quality. The results of the normality test showed that the anxiety scale (HARS) did not meet the normality assumption ($p < 0.05$) and the sleep quality (PSQI) did not meet the normality assumption ($p < 0.05$), so the test used was the *Spearman Rank test*. The *Spearman Rank test* results are presented in Figure 1.

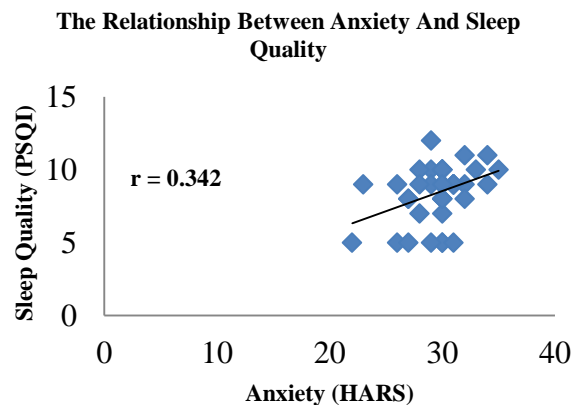


Figure 1. The Relationship between Anxiety and Sleep Quality

Source: processed data

Spearman Rank correlation test shows a correlation value (r) of 0.342 (34.2%) and a p -value of 0.031. P -value $< \alpha(0.05)$, which means that there is a relationship between anxiety (HARS) and sleep quality of patients (PSQI) who will undergo chemotherapy in the chemotherapy treatment room at RSUD Dr. Saiful Anwar Malang. The closeness of the relationship is 34.2% in the low category. The correlation is positive, the higher the HARS, the higher the PSQI, in other words, the higher the level of anxiety, the lower the sleep quality of patients undergoing chemotherapy in the chemotherapy treatment room at RSUD Dr. Saiful Anwar Malang.

Discussion

Chemotherapy is the process of administering anti-cancer drugs in the form of liquid pills or capsules or through infusions that aim to kill cancer (Putra, 2015). Patients with chemotherapy often experience anxiety and cause sleep pattern disturbances, usually anxiety that often occurs in breast cancer patients undergoing chemotherapy in the first, second and third stages, the management that can be done as a nurse is to provide education about emotional support, assess needs patients, fears and patient coping mechanisms.

The anxiety level of patients who will undergo chemotherapy at RSUD Dr. Saiful Anwar Malang

The results of this study showed that most of the respondents (82.5%) had severe anxiety. The results of this study are in line with Purwati's research (2016) which shows that of the 40 female respondents with breast cancer studied, most of the respondents in their study experienced severe anxiety levels, namely 35 respondents (87.5%). While Dewi's research (2019), out of 55 respondents, most of the breast cancer respondents who did chemotherapy with moderate anxiety levels were 60.00% and the remaining 40.00% had mild anxiety levels.

The anxiety felt by cancer patients is a blunt emotional reaction or depression and a sensitive context response (Dewi, 2019). Another opinion states that anxiety occurs as a manifestation of feeling depressed, this condition requires the right solution so that individuals feel safe, but research shows that not all problems can be solved properly by the individual. This feeling of anxiety causes anxiety and fear. The results of research conducted by Oetami (2014) show that the psychological impact of breast cancer patients is felt by respondents the most, namely feeling helplessness in the form of emotional disturbances such as crying and experiencing anxiety in the form of worrying about the impact of treatment.

The results showed that most of the respondents experienced severe anxiety, this could be caused by several factors. Anxiety predisposing factors are explained by several theories that have been developed according to Stuart (2006) including interpersonal theory, according to this theory anxiety arises from feelings of fear of the absence of interpersonal acceptance and rejection. According to Stuart and Sundeen in Purwati et al. (2016) severe anxiety greatly reduces a person's field of perception. A person tends to focus on details and specifics and cannot think about anything else. All behavior is aimed at reducing tension. The person needs a lot of direction to be able to focus on another area.

According to researchers, cancer patients undergoing chemotherapy have different levels of anxiety with various factors causing anxiety such as age and education, anxiety disorders can occur at all ages, more often in adulthood. As an adult, a person usually has a heavier mind load, lasts a long time and is accompanied by many physiological components such as sleep disturbances, restlessness, imagining, fear, anxiety, and so on. In addition, the possibility of anxiety also occurs because almost half of patients have just undergone the first chemotherapy. The anxiety felt by the respondent also has an impact on the patient's recovery because if the patient always experiences anxiety, it is possible that the respondent can stop the chemotherapy, the symptoms felt by the patient who experience anxiety such as restlessness, difficulty sleeping, difficulty concentrating, headaches, frequent urination, and so on.

Sleep quality of patients undergoing chemotherapy At Dr. Hospital. Saiful Anwar Malang

Most of the respondents (82.5%) had poor sleep quality. This is in line with Dewi's research (2019), the results of the study explained that most of the respondents as many as 63.6% of the 55 breast cancer respondents who underwent chemotherapy stated poor sleep patterns. Hop (2019) stated sleep is a mental need as well as a physical need for humans because during sleep it will provide an opportunity for muscles to rest. Sleep is also a time when all the experiences that are felt by humans every day are processed and integrated by the mind. This is very influential on babies and children, but everything depends on how well they sleep. Potter and Perry in Purwati et al. (2016), good quality sleep is important for health. Patients often need more sleep and rest than healthy people do and disease usually prevents some patients from getting adequate sleep and rest. The environment of a hospital or long-term care facility and the activities of the service provider often make it difficult for patients to sleep.

Based on the results of research that has been carried out by Anggraini et al. (2020), The majority of responders (78%) had poor sleep quality. Sleep latency, sleep duration, efficiency, sleep patterns, and daytime dysfunction are components that influence the assessment of respondents' low sleep quality ratings, according to the PSQI's seven components of sleep quality. According to Pratiwi's research (2016), several types of sleep disorders that occur in breast cancer patients undergoing chemotherapy, namely insomnia (66.67%) and circadian rhythm disorders (57.33%). The perceived sleep disturbances were Restless Legs Syndrome (44.0%), sleep apnea (34.67%), and narcolepsy (23.33%). Sleep disturbances that occur can result in poor sleep quality.

According to research results, most cancer patients who will undergo chemotherapy have poor sleep quality, which can be influenced by various factors such as medical conditions (disease diagnosis) and environmental conditions. Where the medical condition is the incidence of the disorder varies for each medical condition. The patient's body needs good quality sleep, a sick body will have difficulty starting and maintaining

sleep. If the body experiences a lack of sleep, the body will experience decreased endurance, decreased daily activities, feel tired and can have an impact on the body, psychological health and also has an impact on healing from the respondent's disease, in the research that has been carried out it was found that breast cancer patients underwent chemotherapy.

The relationship between anxiety levels and sleep quality of patients undergoing chemotherapy at RSUD Dr. Saiful Anwar Malang

Spearman Rank correlation test showed that there was a relationship between anxiety (HARS) and sleep quality of patients (PSQI) who were to undergo chemotherapy in the chemotherapy treatment room at RSUD Dr. Saiful Anwar Malang ($p < 0.05$). The closeness of the relationship is 34.2% in the low category. The correlation is positive, the higher the HARS, the higher the PSQI, in other words, the higher the level of anxiety, the lower the sleep quality of patients undergoing chemotherapy in the chemotherapy treatment room at RSUD Dr. Saiful Anwar Malang. The results of this study are in line with Wahyuningsih's research (2019), which states that there is a significant relationship between anxiety and sleep quality disorders in preoperative femur fracture patients at Prof. Hospital. Dr. Soekandar Mojokerto ($p < 0.05$). The results of this study are also in line with Purwantiri's research (2013), the results of statistical tests with the spearman rank test (ρ) obtained a p value of 0.008 ($p \text{ value} < \alpha$) and a correlation (ρ) of 0.412. These results indicate a relationship between anxiety levels and sleep quality in breast cancer patients.

Anxiety is an emotional response to an unpleasant situation and is experienced by all living things in everyday life that cannot be observed directly and is an emotional state without a specific object and can provide motivation to achieve something in an effort to maintain a balance of life. Richardson et al. (2019) stated that the effects of anxiety in breast cancer patients can increase pain, interfere with sleep ability, increase nausea and vomiting after chemotherapy, as well as disrupt their own quality of life.

The quality of sleep as a basic human need is strongly influenced by various factors that result in disruption of sleep fulfillment in a person. WHO (2015) suggests that there are 4 factors that affect sleep, namely physical, psychological, lifestyle, and environmental factors. A patient with respiratory disorders may also have difficulty sleeping. This difficulty in sleeping can be caused by the structure of respiratory function being disturbed, for example constriction in asthmatic patients. Clinical experience shows that there is a significant interaction between respiratory function disorders and sleep.

According to the results of the study, cancer patients who will undergo chemotherapy have moderate levels of anxiety and poor sleep quality, this is because many breast cancer patients who undergo chemotherapy are worried about the effects of chemotherapy, the anxiety that occurs in respondents is also influenced by age, where the age of the respondents in this study was 41-70 years.

CONCLUSION

Based on the results of the analysis, several conclusions can be drawn as follows; most of the anxiety levels of respondents who will undergo chemotherapy at RSUD dr Saiful Anwar Malang (82.5%) have severe anxiety, while the rest have moderate anxiety. Most of the sleep qualities of respondents who will undergo chemotherapy at RSUD dr Saiful Anwar Malang (82.5%) have poor quality and only 17.5% have good sleep quality. There is a relationship between anxiety (HARS) and sleep quality of patients (PSQI) who will

undergo chemotherapy in the chemotherapy treatment room at RSUD Dr. Saiful Anwar Malang ($p < 0.05$). The closeness of the relationship is 34.2% in the low category. The correlation is positive, the higher the HARS, the higher the PSQI, in other words, the higher the level of anxiety, the lower the sleep quality of patients undergoing chemotherapy in the chemotherapy treatment room at RSUD Dr. Saiful Anwar Malang.

REFERENCES

- Afrianto, Hendri. (2018). Hubungan tingkat stres dengan kualitas tidur pada mahasiswa yang sedang menyusun skripsi di program studi matematika di STKIP PGRI kabupaten Pacitan. *Journal of Linguistics*, 3(2), 139–157. <https://doi.org/10.18041/2382-3240/saber.2010v5n1.2536>
- Anggraini, Dian, Marfuah, Dewi, & Puspasari, Susy. (2020). Kualitas tidur pasien kanker payudara yang menjalani kemoterapi. *Jurnal Ilmiah Kesehatan Keperawatan*, 16(2), 91–100.
- Bintang, Yenni Ade. (2012). *Gambaran tingkat kecemasan, stres dan depresi pada pasien kanker yang menjalani kemoterapi di RSUP dr. Hasan Sadikin Bandung*.
- Dewi, Susi Putri. (2019). *Hubungan tingkat kecemasan dengan pola tidur pasien kanker payudara yang melakukan kemoterapi di RSAM Bukittinggi tahun 2019*. Universitas Perintis Indonesia.
- Globocan 2012 Estimated cancer incidence, mortality and prevalence worldwide in 2012*. (2015). France.
- Harahap, A. S., Fitriani, I. M., & Putri, R. S. (2021). Tingkat kecemasan berhubungan dengan kualitas tidur pasien penyakit paru. *Jurnal Keperawatan*, 13(1), 140.
- Hastuti, Retno Yuli, Sukandar, Anis, & Nurhayati, Tri. (2016). Hubungan Tingkat Kecemasan Dengan Kualitas Tidur Pada Mahasiswa Yang Menyusun Skripsi di STIKES Muhammadiyah Klaten. *Jurnal Motorik*, 11(22), 9–21.
- Hop, Muflih. (2019). Hubungan tingkat kecemasan dengan kualitas tidur pasien pre operasi di rumah sakit umum Sundari Medan. *Indonesian Trust Health Journal*, 1(2), 98–106. <https://doi.org/10.37104/ithj.v1i2.19>
- Laia, Julianto Julianto. (2019). The relationship between anxiety levels through sleep quality of Wijaya Husada Nursing Students: hubungan tingkat kecemasan dengan kualitas tidur pada mahasiswa program studi s1 keperawatan Stikes Wijaya Husada Bogor. *jurnal ilmiah wijaya*, 11(1), 55–65.
- Melanie, Ritha, & Jamaludin, Wendi. (2018). Hubungan tingkat kecemasan dengan kualitas tidur pada pasien pre operasi sectio caesarea. *Prosiding PIN-LITAMAS 1*, 1(1), 122–131.
- Oetami, Fratiwi. (2014). Analisis dampak psikologis pengobatan kanker payudara di RS. *Dr. Wahidin Sudirohusodo Makasar*.
- Pratiwi, Tiara Dwindi. (2016). *Jenis gangguan tidur pada pasien kanker payudara yang menjalani kemoterapi di RSUP dr. Hasan Sadikin Bandung*.

- Purwantiri, Amini. (2013). *Perbedaan kualitas tidur sebelum dan selama kemoterapi pada pasien kanker di RSUP DR. Sardjito Yogyakarta*. Universitas Gadjah Mada.
- Purwati, Purwati, Ma'rifah, Atun Raudotul, & Maryati, Susio. (2016). Hubungan tingkat kecemasan dengan kualitas tidur pada pasien kanker payudara di ruang bougenvil RSUD Prof. dr. Margono Soekarjo purwokerto. *Bhamada: Jurnal Ilmu Dan Teknologi Kesehatan (E-Journal)*, 7(1), 8.
- Putra, AdityaChandra. (2015). *Perubahan Kadar NT-proBNP Dan cTn-I Sebagai Penanda Kardiotoksisitas Akut Pasien Limfoma Non-Hodgkins (LNH) Yang Menerima Kemoterapi Berbasis Doxorubicin*. Universitas Brawijaya.
- Richardson, Scott, Lefrid, Mohammed, Jahani, Shiva, Munyon, Matthew D., & Rasoolimanesh, S. Mostafa. (2019). Effect of dining experience on future intention in quick service restaurants. *British Food Journal*.
- Stuart, Gail W. (2006). *Buku Saku: Keperawatan Jiwa*. Egc.
- Wahyuningsih, Binarti Dwi. (2019). *Hubungan kecemasan dengan gangguan pola tidur pada pasien pre operasi fraktur femur di rsud prof. Dr. Soekandar mojosari kabupaten Mojokerto*.

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Devotion - Journal of Community Service



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