The Relationship Between Quality of Life and Quality of Sleep in Patients Advanced Stage (3 and 4) Breast Cancer at RSUP Haji Adam Malik

Vera El Sammah Siagian[1], Elmeida Effendy[1*], Mustafa M. Amin[1] (ID)

[1]Department of Psychiatry, Faculty of Medicine, Universitas Sumatera Utara
*Corresponding author: elmedia.effendi@usu.ac.id

Abstract

Background: Breast cancer is The most frequent cancer among women worldwide. According to the American Psychiatric Association, diagnosed patients will develop traumatic stressors that could interfere with performance, such as work and social function. History of treatment such as radiotherapy, surgery, chemotherapy, and hormone therapy could lead to weakness and weight loss and affect psychological function. These could negatively impact the patient's quality of life. Sleep disturbance is a common complication found in more than 70% of advanced cancer patients, usually caused by the disease itself or the use of painkiller drugs to reduce pain during treatment.

Methods: This was a correlational analysis with a cross-sectional study approach. Non-probability sampling technique, as part of consecutive sampling, was used in this study, where patients who met the inclusion criteria were admitted to the trial until the necessary number of participants was reached. Data obtained were demographics, quality of life (SF-36), and quality of sleep (PSQI). These data were managed and analyzed using SPSS.

Results: The study showed a significant link between quality of life and sleep with r -0,654; n 90; and p< 0.0001.

Conclusion: There is a significant inverse relationship between quality of life and sleep, where a higher SF-36 score for life quality corresponds to a lower PSQI score for sleep quality.

Keywords: Breast cancer, SF-36 (Short Form 36), PSQI (Pittsburgh Sleep Quality Index)

Introduction

Breast cancer patients with a history of treatment such as radiotherapy, surgery, chemotherapy, and hormone therapy could suffer from physical weakness, weight loss, and psychological effects related to self-reflection and sexual problems. The results can harm the patients' quality of life. To enhance patients' health outcomes and assess how well therapy is being administered, quality of life measurement is necessary [1], [2].

The most prevalent type of cancer among women worldwide is breast cancer [3]. Emotional burden is a serious problem faced in chronic disease; according to the American Psychiatric Association, patients diagnosed with cancer will suffer from traumatic stressors that might affect performance, such as work and social function [4]. A 2020 data from the Global Burden of Cancer Study (GLOBOCAN) showed breast cancer as the primary contributor to cancer incidence worldwide (11.7% of the total cases), surpassing lung cancer. Additionally, it is one of the top five killers, accounting for 685,000 deaths globally [5].

A person's sense of their place in the community, with respect to culture and values, and in relation to their aspirations, dreams, expectations, and standards, is what is meant by their quality of life. It is a concept of a complicated summary that includes relationships to environmental variables as well as physical and psychological well-being, independence, social engagement, and personal values [6].

Cancer patients' quality of life is influenced by their physical and mental well-being as well as their social and environmental interactions and belief in their ability to recover. Due to the decline in quality of life in cancer patients with stages 3 and 4, assessing the quality of life after therapy is crucial. Physical, social function, emotional, role and cognitive make up the functional scale domain that has a significant impact on quality of life [7], [8]. In a 2022 study at Malahayati Islamic Hospital, Bintang et al. found a link between breast cancer patients' VAS and PHQ-9 scores, demonstrating a connection between pain and depression [9].

The scale of symptoms, including fatigue, pain, sleeplessness, and lack of appetite, is the domain that impacts the decline in quality of life [8]. A higher HADS (Hospital Anxiety and Depression Scale) score indicates more anxiety and depression. In addition, a thorough screening procedure should be taken into account for the possibility of psychopathological comorbidity, given the high risk of anxiety and depression in cancer patients in order to enhance quality of life [10].

Sleep disturbance is a common complication found in more than 70% of advanced-stage cancer patients due to medical disorders or painkiller drugs used during treatment. Sleep disturbance is found to be related to changes in mood, decreased pain tolerance and quality of life. Poor sleep quality, especially insomnia, is one of the most general long-term sequels of cancer diagnosis, which requires proper management. Patients might suffer from sleep disturbance due to the direct effect of neoplasm, surgery, chemo/radiotherapy, pain, delirium, opioid, or other psychological/psychiatric conditions [11].

Subjects and Methods:

This study at RSUP Haji Adam Malik Medan employed a cross-sectional correlation design to examine the relationship between quality of life and sleep in patients with advanced stage (3 and 4) breast cancer. Research started until a criterion of 90 samples was fulfilled. Patients were asked to fill in demographics data and were given explanations on questionnaires for SF-36 and PSQI before filling it. The results were managed and analyzed using Microsoft Excel and SPSS software.

Results

Numerical variables shown in Table 1 were age, SF-36 score and PSQI score. These were presented as median (min-max) due to normal distribution (p>0,05). This study used the Kolmogorov-Smirnov test due to n=90 (>50). The demographics showed that the median age distribution was 51.5 years (30-64), all subjects were female, and the highest educational level was senior high school with 39 subjects (43.3%).

Furthermore, most subjects were in stadium 4   with 38 subjects (42,2%), SF-36 score with mean and standard deviation of 56,84±12,75 and PSQI score of 4,71±2,1.

Table 1. Characteristics of advanced stage (3 and 4) breast cancer patients

Variables	Mean ± SD	Median (min-max)	n%
Age	50,32 ±8.38	51,5 (30-64)	
Gender			
Male			0 (0)
Female			90 (100)
Education			
Primary school			0 (0)
Junior high school			16 (17,8)
Senior high school			39 (43,3)
College/university			35 (38,9)
Cancer stage			
3 A			9 (10)
3 B			25 (27,8)
3 C			18 (20)
4			38 (42,2)
SF-36 score	56,84±12,75		
PSQI score	4,71±2,1		

The correlation between quality of life (SF-36) and sleep (PSQI) in patients with advanced stage (3 and 4) breast cancer at RSUP Haji Adam Malik was analyzed using SPSS. Data was analyzed using mean difference and Kolmogorov-Smirnov test to assess normal distribution. Data was found to be normally distributed, and the Pearson correlation coefficient was used to observe if there is a relationship between SF-36 and PSQI score.

Table 2. Relationship between quality of sleep (PSQI) and sleep (SF-36) in advanced stage (3 and 4) breast cancer patients at RSUP Haji Adam Malik

Variables	N	R	P
PSQI with SF-36	90	-0,654	0,0001

*Pearson correlation coefficient

Table 2 showed a high negative relationship between quality of life and sleep where the higher the SF-36 score in quality of life, the lower the PSQI score in quality of sleep with r-0,654; n 90; and p-value <0,0001.

Discussion

Patients with advanced stage (3 and 4) breast cancer at RSUP Haji Adam Malik participated in this study to examine the association between quality of life and sleep. The mean age of subjects was 50,32±8,36. According to WHO, cancer is mainly seen in women aged >55 years, although many studies have shown an increase in incidence in younger women. The examination of the morbidity coefficient among cancer patients in Poland revealed a rise in the proportion of women diagnosed with breast cancer between the ages of 40 and 59 and a decline in the frequency of the disease in those older than 70 [12].

All subjects (100%) were female, as no male cases were found. This finding was in line with the study by Elmika et al. in Makassar 2020, which showed that 98% of the 530 patients were female.[10] 1 out of 8 women experienced the development of breast cancer during life. The development most likely happened in women with hormonal problems, which is unrelated to the incidence of breast cancer in menopausal women respondents [13].

Most of the subjects (43.3%) were senior high school graduates. Patients with higher educational levels are more likely to perform breast cancer screening. They also tend to have more medical knowledge, thus will lead to faster detection of cancer and shorter duration of treatment [14], [15].

Most subjects were at stage 4 with 38 people (42,2%), followed by stage 3 B with 25 people (27,8%). More than 80% of breast cancer cases are found at the advanced stage, which causes difficulty in treatment. This is due to the lack of awareness and understanding of breast health, the lack of early detection of breast cancer, the low educational level, and the high cost. Another factor is the growing stigma in the community where breast screening is considered taboo. There are also myths about breast cancer, such as it only happens in the elderly, breast pain does not lead to cancer, and breast surgery will eventually lead to death [16].

The mean SF-36 quality of life score was 56,84±12,75. This was consistent with a study conducted in Yogyakarta in 2021 by Prasetyo and Suprayitno, which revealed that 77% of participants had a high quality of life, while the remaining 33% had a low quality of life. This was due to the ability of patients to control the pain experienced and the awareness of their current health condition, as well as the ability to accept the condition positively by improving social interaction with family and community [17].

The assessment of sleep quality using PSQI showed mean ± SD of 4,71±2,1 where PSQI<5 indicated a good quality. Sleep disturbance affecting sleep quality could be triggered by various factors, such as physical disorders due to breast cancer [18].

Our research revealed a significant inverse relationship between sleep quality and quality of life. A higher SF-36 score on the quality of life will lead to a lower PSQI score on the quality of sleep, with r-0,654; n 90; and p<0,0001. It often happens in breast cancer patients undergoing chemotherapy as they are more prone to suffer from fatigue due to lack of sound sleep when they should have had a longer duration of sleep [18].

Conclusion

The SF-36 score and the PSQI score on sleep quality are strongly inversely correlated in patients with advanced stage (3 and 4) breast cancer at RSUP Haji Adam Malik Medan, with the higher SF-36 score associated with poorer sleep quality. Our study showed that patients must pay attention to the quality of life to achieve better sleep quality.

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