

# Correlation between Level of Depression and Degree of Pain on Quality of Life in Advanced Stage Breast Cancer Patients (III and IV) at H. Adam Malik General Hospital Medan

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## Abstract

Breast cancer is one of the most frequently diagnosed cancers in women. Pain is a complaint that is often found in patients with malignancy. The incidence of pain complaints is high based on the literature and the impact is quite large, such as the impact of the level of depression that affects the quality of life in breast cancer patients. This research is a correlative analytic research with a cross-sectional study approach. The sampling technique in this study used the non probability sampling type consecutive sampling technique, in which all subjects who came and met the selection criteria were included in the study until the required number of subjects was met. The data begins with filling in demographic data, pain score (NRS), depression (PQH-9) and quality of life (SF-36). After the results are obtained, management and data analysis will be carried out using SPSS software. This study found a negative correlation between the level of depression and quality of life, where the higher the level of depression (PHQ-9), the lower the quality of life (SF-36)  $r=-0.817$ ,  $n=90$  and  $p<0.0001$  (strong correlation strength). There is a negative correlation between the degree of pain and quality of life, where the higher the degree of pain (NRS), the lower the quality of life (SF-36 score)  $r=-0.886$ ,  $n=90$  and  $p<0.0001$  (strong correlation strength). In this study, the results showed that there was a relationship and a strong negative correlation between the level of depression and quality, a relationship and a strong negative correlation between the degree of pain and quality of life and there was a relationship and a strong negative correlation between quality of life and quality of sleep in patients.

**Keywords: Breast Cancer, Numeric Rating Scale (NRS), Short Form 36 (SF-36), Patient Health Questionnaire (PHQ-9).**

## Introduction

Breast cancer is one of the most frequently diagnosed cancers in women.<sup>1</sup> Global Cancer Observatory data in 2021 from the World Health Organization (WHO) states that the number of cases of breast cancer has surpassed lung cancer as the main cause of global cancer incidence in 2020, with estimated 2.3 million new cases, representing 11.7% of all cancer cases.<sup>2</sup>

Pain is often described as one of the most disturbing aspects of cancer and has a major impact on the quality of life of cancer patients.<sup>3</sup> Data collected by Van den Beuken and colleagues in 2007 in the Netherlands stated that from 52 articles it was shown that pain is very common in cancer patients 33 % in recovered patients, 59% in patients receiving anticancer treatment and 64% in patients with metastatic or advanced disease.<sup>4</sup>

Quality of life in cancer patients is also related to physical and psychological health, confidence to recover, social relationships and relationships with the surrounding environment. Assessment of quality of life after treatment becomes so important due to decreased quality of life in patients with stage 3 and 4 cancer.<sup>5</sup> The factors that affect the decreased quality of life of patients are on the symptom scale, namely fatigue, pain, quality of sleep and loss of appetite.<sup>6</sup>

Cancer patients generally will feel very severe emotional distress such as shock, anxiety and depression. The prevalence of depressive symptoms in patients with breast cancer is 4.94%.<sup>7</sup> In 60 female patients using the questionnaire

The McGill Pain Questionnaire-Short Form (SFMPQ) and The Center for Epidemiological Studies Depression Scale-10 (CESD-10) showed an increase level of depression is significantly associated with increased levels of the pain component.<sup>8</sup>

The high incidence of pain complaints based on the literature and the considerable impact it has, such as the impact of the level of depression that affects the quality of life in breast cancer patients, so through this study the researchers wanted to know the relationship between the level of depression and the degree of pain on the quality of life in patients with advanced breast cancer. (III and IV) at H. Adam Malik General Hospital Medan which is expected to provide information on clinicians and breast cancer patients.

### Subjects and Methods

This research is a correlative analytic research with a cross-sectional study approach. The design of this study was to identify the relationship between the level of depression and the degree of pain on quality of life in advanced breast cancer patients (III and IV) at H. Adam Malik General Hospital, Medan. This research was conducted after obtaining approval from the Health Research Ethics Committee of the University of North Sumatra (Number: 143/KEPK/USU/2022) and obtaining research permits from H. Adam Malik General Hospital Medan (Number: LB.02.02/XV.III.2.2.2 //3958/2022). This research was conducted from 11 November 2022 – 22 November 2022 with a total sample of 90 people at the Oncology Surgery polyclinic at H. Adam Malik General Hospital, Medan. The patient will begin by filling in the subject's demographic data and assessing the pain score using the NRS measuring instrument. Next, the patient will be given the PQH-9 and SF-36 questionnaires, beginning with a brief explanation of the questionnaires and filled in directly by the subject. After the results are obtained, management and data analysis will be carried out using SPSS software.

### Results

In this study, a total sample of 90 people was obtained. Demographic characteristics showed that the distribution of the gender variable was 90 subjects (100%) female. The highest educational variable was high school, namely 39 subjects (43.3%), the highest duration of illness was 6-12 months, namely 37 subjects (38.9%), the most common stage was stage IV, namely 38 subjects (42.2%), and history the most chemotherapy is yes do chemotherapy that is 69 subjects (76.7%).

Table 4.1 Patient Demographic Characteristics

Variabel	Mean±s.b	Median (Min- maks)	n%
Gender			
-Man			0 (0)
-Woman			90 (100)
Age	50,32±8,36	51,5 (30-64)	
School			
-SD			0 (0)
-SMP			16 (17,8)
-SMA			39 (43,3)
-S1			35 (38,9)
Long Sick			
< 6 months			19 (21,1)
6-12 months			37 (38,9)
>1 year			34 (37,8)
Tumor Stage			
-IIIA			9 (10)
-IIIB			25 (27,8)
-IIIC			18 (20)
-IV			38 (42,2)
Chemotherapy			

-Yes	69 (76,7)
-No	21 (23,3)
SF-36	56,84±12,75
PHQ-9	4,86±3,2
NRS	4,98±2,80

Table 4.1 also shows that the median (minimum-maximum) value of the age variable is 51.5 (30-64), the variable SF-36 score is the mean ± standard deviation 56.84 ± 12.75, the variable PHQ-9 score is the average ± standard deviation 4.86 ± 3.2 and the variable NRS score mean ± standard deviation 4.98 ± 2.8.

Relationship between depression level (PHQ-9) and quality of life (SF-36) in advanced breast cancer patients (III and IV). Table 4.2 shows a negative correlation between depression level and quality of life, where the higher the level of depression (PHQ-9 score) ) the lower the quality of life (SF-36 score)  $r=-0.817$ ,  $n=90$  and  $p<0.0001$  (strong negative correlation).

Table 4.2 Relationship between depression level (PHQ-9) and quality of life (SF-36) in advanced breast cancer patients (III and IV) at H. Adam Malik General Hospital Medan

Variabel	n	R	p
PHQ-9 and SF-36	90	-0, 817	0,0001

\* Pearson correlation

Correlation between degree of pain (NRS) and quality of life (SF-36) in advanced breast cancer patients (III and IV) at H. Adam Malik General Hospital Medan In table 4.3, a negative correlation between the degree of pain and quality of life is found, where the higher the degree of pain NRS score) the lower the quality of life (SF-36 score)  $r=-0.886$ ,  $n=90$  and  $p<0.0001$  (strong negative correlation).

Table 4.3 The relationship between the degree of pain (NRS) and the quality of life (SF-36) of advanced breast cancer patients (III and IV) at H. Adam Malik General Hospital Medan

Variabel	n	R	p
NRS and SF-36	90	-0,886	0,0001

\* Pearson correlation

## Discussion

This study aims to determine the relationship between the level of depression and the degree of pain on the quality of life in advanced breast cancer patients (III and IV) at H. Adam Malik General Hospital, Medan. The results showed that the average age was  $50.32 \pm 8.36$ , with the lowest age being 30 years and the highest being 64 years. The large number of patients aged 40 years and over because this age is the greater the risk of developing breast cancer. Breast cancer begins to grow rapidly at the age of 40-49 years, while the risk of breast cancer itself develops until the age of 50 with a odds ratio of 1 in 50 women.<sup>9</sup> In this study, male sex was not found, for female sex it was 100%. This is in line with Elmika E et al's research in 2020 in Makassar where out of a total of 530 cases studied, 98% were female.<sup>10</sup> 1 out of 8 women will develop breast cancer throughout their lives. The greatest possibility of the development of breast disease begins to occur in women with hormones not related to the incidence of breast cancer in menopausal female respondents.<sup>11</sup>

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The highest level of education in breast cancer found was the high school level of 43.3%. In line with the research of Panigoro et al in 2013 in Jakarta, as many as 32% of breast cancer patients with high school education levels were found. Women who have higher education will be more sensitive to symptoms and immediately go to the hospital so that they will get breast cancer treatment earlier. Self-examination as early as possible to prevent breast cancer is very important.<sup>12</sup>

The results showed that the highest tumor stage was in stage IV as many as 38 people (42.2) and stage IIIB as many as 25 people (27.8). In line with Janaari's research in 2015 in Denpasar where 46.5% were at stage IIIB. Delay in checking into the hospital, diagnosis and lack of patient awareness about health.<sup>13</sup>

Pain assessment in this study used the NRS, with a mean  $\pm$  standard deviation NRS score of  $4.98 \pm 2.8$  (Scale 4-6 moderate pain). Cancer pain can be experienced by patients at any stage of cancer, the stage of cancer and the location of the cancer affect the intensity of pain experienced by cancer patients so that it can affect the patient's pain score. 75-90% of cancer patients with advanced and metastatic stages will experience an increase in the intensity of cancer pain.<sup>14</sup>

This study found that the mean value for quality of life using the SF-36 was  $56.84 \pm 12.75$ . This is in line with Prasetyo and Suprayitno's research in 2021 in Yogyakarta where when viewed from the domain of the quality of life component from SF-36, a good quality of life condition is a score above 50, a poor quality of life score is  $<50$ . The results showed that most of the data had degrees of quality of life in the good (77%) and bad (33%) categories. The majority of respondents, quality of life is good, this is because patients are able to control the pain they experience and are aware of their current health conditions and accept conditions well by improving social relationships with family and others. 33% of respondents have a poor quality of life. This arises because respondents still always limit their daily activities.<sup>15</sup>

The results of this study for the level of depression assessed by PHQ-9 obtained a mean  $\pm$  standard deviation of  $4.86 \pm 3.2$ , where a PHQ-9 score of 0-4 was absent until mild depression. In line with the results of Sukma's research in 2018 that more breast cancer sufferers at Level III Hospital Baladhika Husada Jember did not show any symptoms of depression, namely 62 respondents (75.6%).<sup>16</sup> There was a positive relationship indicating that the more severe the stage cancer, the more severe the symptoms of depression are. The findings in this study indicate that the stage of cancer can play a role in the occurrence of depression in cancer patients because of the patient's emotional response and perception of their disease. Poor perceptions of health conditions can affect the emergence of emotional responses such as feelings of anxiety and fear. Uncontrollable thoughts and feelings caused by poor individual coping and lack of support from people around can lead to depressive conditions in patients with their health conditions.<sup>17</sup>

This study found a negative correlation between the level of depression and quality of life, where the higher the level of depression (PHQ-9 score), the lower the quality of life (SF-36 score)  $r=-0.817$ ,  $n=90$  and  $p<0.0001$  (strong correlation strength). This is in line with Amalia RF's research in 2015, most of the respondents were at a mild depression level (51.5%) and a good quality of life score (score 8) was 27.3%. The results of the Pearson correlation analysis showed that there was a strong negative relationship, meaning that the higher the level of depression, the lower the quality of life of breast cancer patients ( $p < 0.001$ ,  $r = -0.794$ ). There is a relationship between the level of depression and the quality of life of breast cancer patients, most breast cancer patients experience mild depression and have a good quality of life.<sup>18</sup>

The results of this study in advanced breast cancer patients obtained a negative correlation between the degree of pain and quality of life, where the higher the degree of pain (NRS score), the lower the quality of life (SF-36 score)  $r=-0.886$ ,  $n=90$  and  $p < 0.0001$  (strong correlation strength). This research is in line with Anggi et al's study in 2022 which found that there was a relationship between pain and quality of life based on breast cancer stage ( $p = 0.01$ ).<sup>19</sup> This is also in line with Farha et al's study in 2017 in Palestine which stated pain during treatment breast cancer-related quality of life ( $p<0.05$ ).<sup>20</sup> Patients who classified their

pain as intense pain and had distant metastases had lower mean scores on the global health scale. This shows that the group of patients with distant metastases with acute pain is strongly associated with a decrease in the quality of life of cancer patients.<sup>21</sup>

## Conclusion

In the demographic characteristics of advanced breast cancer patients (III and IV) at H. Adam Malik General Hospital Medan, the variable gender is female as many as 90 subjects, the median age (minimum-maximum) is 51.5 (30-64), the variable level of education the highest was SMA 39 subjects, the most variable of employment status was working 56 subjects, the most variable length of illness was 6-12 months as many as 37 subjects, the most variable stage was stage IV as many as 38 subjects, and the variable history of chemotherapy was 69 subjects. relationship and strong negative correlation between the level of depression and pain on the quality of life of advanced breast cancer patients (III and IV) at H. Adam Malik General Hospital Medan.

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