The Differences Of Depression Scores In Breast Cancer Patients Before And After Doing Mastectomy In H. Adam Malik General Hospital Medan

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Abstract- **Background:** Diagnosis of breast cancer does not only affect physical conditions but also social and psychological conditions. The 5-year survival rate for breast cancer patients has increased by 89%. Patients with breast cancer at this stage appear to be the most stressful and have a higher risk for emotional distress. This study aims to determine whether there are differences in depression scores in breast cancer patients before and after mastectomy.

Method: This study is a *numerical comparative analytic* in pairs with the *cohort study* approach. Sampling was executed at the Inpatient Surgery Room at H.Adam Malik General Hospital Medan from November to December 2019. The sampling technique was *consecutive sampling*, where all subjects who came consecutively and included the criteria would be selected as research samples. Data analysis was performed with SPSS software using *paired T-test*.

Result: A sample of 30 breast cancer patients and will undergo mastectomy therapy. The largest age group is 41-50 years as many as 20 people (66.6%). The mean score of depression in breast cancer patients before and after mastectomy was 14.77 and 18.67, respectively. There is a mean difference between the means depression score of breast cancer patients before and after the mastectomy was 3.90, the standard deviation was 4.34, and the confidence interval was 2.28 - 5.52.

Conclusion: Obtained p-value <0.001 which indicates that there is a significant difference in the mean score of depression before and after the mastectomy.

Index Terms- Depression, Breast Cancer, Mastectomy

I. BACKGROUND

According to the *World Health Organization* (WHO), breast cancer is the most common cancer among women, affects 2.1 million women each year, and also causes the largest number of cancer-related deaths among women. In 2018, an estimated 627,000 women died from breast cancer, which is about 15% of all cancer deaths among women. While breast cancer rates are higher among women in more developed regions, rates are increasing in almost every region globally.[1]

Many breast cancer patients experience distress and most of them experience depression which can lead to amplification of physical symptoms, increased functional impairment, and poor medication adherence. Diagnosis of breast cancer does not only affect physical conditions but also social and psychological conditions. This is because of the importance of breasts in women's body image, sexuality, and motherhood. The 5-year survival rate for breast cancer patients has increased by 89%. Psychological distress among patients with breast cancer is associated with worse clinical outcomes and at the same time, advanced breast cancer appears to be the most stressful and has a higher risk for emotional distress.[2]

Kaminska et al. (2015) stated that the level of total depression was evaluated using a scale BDI-II was 16.3 points in the group radical mastectomy, which means they suffered from mild depression, whereas in the mastectomy group the level was 19.6 points, which corresponds to moderate depression.[3] However, this is different from the study of Medeiros et al. (2010) where 12 breast cancer patients did not experience depression (48%), 4 people with mild depression (16%), 8 people with moderate depression (32%), and 1 person with severe depression (4%).[4]

Based on the above background, this study aims to determine whether there are differences in depression scores in breast cancer patients before and after performing a mastectomy at the H. Adam Malik General Hospital Medan.

II. METHOD

This research is a *numerical comparative analytic* in pairs with the approach of *a cohort study*, which assessed the difference in depression scores in breast cancer patients before and after performing mastectomy. The sample was 30 breast cancer patients and will undergo mastectomy therapy in the Inpatient Surgery Room at RSUP H. Adam Malik Medan, from November to December 2019. The sampling technique is *consecutive sampling*, where all subjects who come sequentially and meet the selection criteria are included in the study until the required number of subjects is fulfilled.

The inclusion criteria of this study were (a) Patients who had been diagnosed with stage III breast cancer who were still operable, and who had been scheduled to undergo radical mastectomy therapy by an oncology surgeon at H.Adam Malik General Hospital Medan, (b) aged between 30 -50 years old, and (c) Understand Indonesian, willing to be a respondent and can be interviewed. While the exclusion criteria were (a) Having general medical disorders and/or other comorbidities, and (b) Suffering from other psychiatric illnesses before being diagnosed with breast cancer.

Before data analysis, the data normality test will be performed using the *Shapiro-Wilk* test because the sample size is

30 samples. [5] If the data is normally distributed, data analysis will use *paired t-test*. If the data is not normally distributed, data transformation uses *logs*. If it is still not normally distributed, data analysis will be performed using the *Wilcoxon* test.[6] Data processing and analysis is performed using the *Statistical Package for Social Sciences* (SPSS) software. This study has received approval from the Research Ethics Committee at the Faculty of Medicine, University of North Sumatra.

III. RESULTS

This study was conducted in the Inpatient Surgery Room at RSUP H.Adam Malik General Hospital, Medanfrom November to December 2019. Sampling was conducted using a *consecutive sampling* type. This study involved 30 research subjects. This is a *numerical comparative analytical* study using a *cohort-study* approach.

Table 1. Distribution of Research Subjects Based on Demographic Characteristics

Demographic Characteristics		n	(%)
Age (year)	30-40	10	(33.3)
	41-50	20	(66.7)
Level of education	Junior High School	18	(60)
	Senior High School	9	(30)
	College	3	(10)
Marriage status	Married	22	(73.3)
	Not Married	8	(26.7)
Job-status	Work	14	(46.7)
	Did not work	16	(53.3)

Table 1 shows the demographic characteristics based on the largest age group, namely 41-50 years as many as 20 people (66.6%). The majority of subjects had a junior high school education level of 18 people (60%), and 22 people (73.3%) married status. Based on employment status, it was almost the same as those who worked and did not work, namely 14 people (46.7%) and 16 people (53.3%), respectively.

Table 2. Depression Score in Breast Cancer Patients Before and After Mastectomy

	n	Average (SB)	IK95%
The depression score for breast cancer patients before the mastectomy	30	14.77 ± 2.85	13.70 - 15.83
Depression scores for breast cancer patients after mastectomy	30	18.67 ± 4.02	17.17 - 20.17

Table 2 shows that the mean score of depression in breast cancer patients before the mastectomy was 14.77 andthe standard deviation was 2.85. While the mean score of depression in breast cancer patients after mastectomy was 18.67 and the standard deviation was 4.02.

Table 3. Differences in Depression Scores for Breast Cancer Patients Beforeand After Mastectomy

	Average (SB)	Difference (SB)	95% CI	p-value
Depression score for breast cancer patients before mastectomy	14.77 (2.85)			
Depression scores for breast cancer patients after mastectomy	18.67 (4.02)	3.90 (4.34)	2.28 - 5.52	<0.001

Paired t-test

Table 3shows the differences in depression scores for breast cancer patients before and after mastectomy. There was a mean differencebetween the meansdepression score of breast cancer patients before andafter the mastectomy was 3.90, the standard deviation was 4.34, the confidence interval was 2.28 - 5.52. From the above results, it was obtained p-value <0.001 which stated that there was a significant difference in the mean score for depression before and after the mastectomy.

IV. DISCUSSION

Based on the characteristics of the age group, the majority were 41-50 years old as many as 20 people (66.6%). Several studies are in line with this research such as Khan et al. (2016) in Pakistan found that breast cancer patients in the 41-50 year age group (n = 24) were more than the 30-40 year age group (n=11).[7] Another study by Kim et al. (2017) in Korea had significantly more breast cancer patients among middle-aged and older adults (age ≥ 40 years).[8] The study of Amin et al. (2017) in Indonesia also had more breast cancer patients in the 40-49 year age group (n = 28), compared to other age groups.[9] Tsaras et al. (2018) in Greece it was found that breast cancer was more prevalent in the 40-49 year age group (n = 18), compared to other age groups.[10]

This study only involved female subjects. This is because based on data from WHO stated thatabout 18.1 million new cancer cases appear every year worldwide. Breast cancer is the most common type of cancer in women and is estimated to affect more than 10% of women.[1] The *American Cancer Society* in 2017 reported that breast cancer cases were more common in women than men. An estimated 252,710 new cases of breast cancer were diagnosed in women and 2,470 cases in men. Besides, around 40,610 women and 460 men are estimated to have died from breast cancer.[11] Based on GLOBOCAN data in 2018, it was said that around 2.1 million cases of breast cancer were newly diagnosed in women, accounting for nearly 1 in 4 cases of cancer among women.[12]

Table 1 shows that the highest level of education in junior high schoolas many as 18 people (60%) between senior high schooland college. In a study by Guntari and Suariyani (2014) in Indonesia, it was found that breast cancer patients were mostly at a low level of education (n = 21) compared to college (n = 20).[13] The results of this study are in line with Kanmaz's study in Turkey (2019), where the most breast cancer patients were at the junior high school education level (n = 48) compared tosenior high school (n = 16) and college (n = 2).[14]

Based on marital status, the majority of subjects were married, namely 22 people (73.3%). The study of So et al. (2010) in Hong Kong stated that breast cancer patients with married status (n = 168) were more likely than those who were unmarried (n = 50).[15] The study of Guntari and Suariyani also reported that breast cancer patients with married (n = 36) was more common than unmarried status (n = 3).[13] In the Tsaras study (2018) in Greece, it was stated that breast cancer patients mostly occurred in patients with married status (n = 24) compared to not married (n = 11).[10] This is the sameas the study of Kanmaz et al. that breast cancer patients were married (n = 59) more than those who were not married (n=3).[14]

In employment status, there was almost the same number of subjects who worked and did not work, that was 14 people (46.7%) and 16 people (53.3%), respectively. Guntari and Suariyani's study found breast cancer patients who did not work (n = 22) more than patients who worked (n = 19).[13] Another study by Farooqi (2005) in Pakistan showed breast cancer patients who did not work (n = 45) more than those who worked (n = 5).[16] This study is similar to the study of So et al. (2010) stated that breast cancer patients who do not work (n = 161) are more than those who work (n = 49).[15]

Table 2 shows that the mean score of depression in breast cancer patients before the mastectomy was 14.77 and the standard deviation was 2.85. While the valuemeans a score of depression in breast cancer patients after mastectomy was 18.67 and the standard deviation was 4.02.

Table 3 shows the mean differences depression score of breast cancer patients before and after a mastectomy is 3.90, the standard deviation is 4.34, the confidence interval is 2.28 - 5.52. From the above results, it was obtained a p-value <0.001 indicated that there was a significant difference in the mean score for depression before and after the mastectomy. This result is alike to Farooqi'study et al. who compared pre-and post-mastectomy breast cancer patients, where there were differences in the mean depression score in the post-mastectomy phase compared to before mastectomy (t = 1.68, p <0.05).[16]Study by Cordero et al. (2015) in Spain, reported that 76.3% of patients newly diagnosed with breast cancer had depression, in contrast to 53.3% of patients who had undergone a mastectomy.[17] However this is different from the study of Medeiros et al. (2010) in Brazil which stated that breast cancer patients who did not experience depression (n = 12).[4]

V. CONCLUSION

This research found the mean score of depression in breast cancer patients before the mastectomy was 14.77 and the standard deviation was 2.85. Whilethe mean score of depression in breast cancer patients after mastectomy was 18.67 and the standard deviation was 4.02.

There was a difference in the mean between means depression score of breast cancer patients before and after the mastectomy was 3.90, the standard deviation was 4.34, the confidence interval was 2.28 - 5.52. Obtained p-value<0.001 which indicates that there is a significant difference in the mean score of depression before and after the mastectomy.

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