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Affective Psychopathology Towards the Quality of Life of Breast Cancer Patients with Radiotherapy in Medan, Indonesia

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Keywords: Psychopathology; Hospital anxiety and depression scale; Breast cancer

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Abstract

Background: Cancer has to become the scariest disease and tends to reduce the quality of life of the patient. Therefore, it is not only a medical treatment that needs to be conducted but also a psychological treatment.

AIM: to analyse the relationship between affective psychopathology and the quality of life of breast cancer patients who are receiving radiotherapy treatment.

METHODS: This research was a correlative analytical study with a cross-sectional approach using the Hospital Anxiety and Depression Scale (HADS) instrument to assess psychopathological features and the European Organization for Research and Treatment of Cancer Quality of Life Questionnaire-C30 (EORTC QLQ-C30) to determine the quality of life. This research was conducted in March 2016-July 2016 at Vina Estetika Cancer Center Hospital, Medan, Indonesia. As many as 47 subjects were divided into two criteria; Inclusion criteria, participants with breast cancer who were undergoing radiotherapy, aged over 18 years, with HADS score ≥ 17, and the exclusion criteria, were patients suffering from chronic psychiatry diseases.

RESULTS: Affective psychopathology was indicated to result in a significant negative correlation with the quality of life of breast cancer patients which whom were treated with radiotherapy with $p = 0.035$ and $r = -0.267$. This suggests that with a higher HADS, a decrease in quality of life will occur.

CONCLUSIONS: Affective psychopathological comorbidities have a great influence on the quality of life of patients who are undergoing radiotherapy. Thus, cancer management must include screening for psychopathological morbidity. Moreover, psychological rehabilitation must also be provided along with the cancer treatment.

Introduction

Cancer, considered as a serious and chronic disease has been described to eliminate hope and certainty of the patients to be cured and reminded people of painful deaths, guilty, anxiety, and caused panic and confusion [1]. The first reaction to a disease that a person experience is shocked and distrusted. In the second phase, the patient's reaction becomes wider. The basic reaction in this period is anxiety. The third phase is the period in which the patient can accept reality. This is a period in which patients learn to live with their illness. If emotions and behavioural reactions exceed the expected limits, this can turn into depression. Cancer is one of the leading causes of death worldwide. In 2012, around 8.2 million deaths were caused by cancer. Lung, liver, colorectal and breast cancer are the biggest contributors of cancer deaths every year [2].

A research conducted by Hassan et al. discovered the prevalence of depression in breast cancer patients was 22.0%, and anxiety was 31.7%. Moreover, So et al., in Hong Kong, revealed that anxiety and depression have a detrimental effect on the whole and other scales on the quality of life of breast cancer patients undergoing adjuvant therapy such as radiotherapy [3], [4], [5].

Depression and anxiety are very important psychopathological comorbidities in cancer patients [6]. Hospital Anxiety and Depression Scale (HADS) is a self-assessment scale developed for use in medical purposes. It was firstly developed by Zigmond and

Snaith which aimed to provide clinicians with acceptable, trustworthy, valid and easy tools to identify and quantify anxiety and depression. The term "Hospital" in HADS is intended to not only valid in the arrangement, but also many studies have been carried out throughout the world, and it has been confirmed that it is also valid when used in the community and medical practice services [7], [8], [9], [10].

According to research conducted by Ozalp et al.stated that the total score of HADS with a cut-off value of ≥ 17 was optimal in identifying cases of major depression. This cut-off value had a sensitivity of 0.70 and a specificity of 0.80. HADS is also recommended as a screening tool for people living with breast cancer [11].

By knowing the correlation between effective psychopathologists on the quality of life of breast cancer patients who are undergoing radiotherapy, the input to health workers to detect early and anticipate when needed management psychological sequelae in cancer patients and management of psychological aspects of palliative and end of life care for the breast cancer patients can be obtained.

To sum up, this research aimed to assess the correlation between effective psychopathology and quality of life in breast cancer patients who are undergoing radiotherapy at Vina Cancer Center Medan Hospital, which in turn is expected to provide information to clinicians and breast cancer patients.

Methods

This research took place at Vina Estetika Cancer Center Hospital, located in Medan, Indonesia. The research was conducted from March to August 2016 with a total sample of 47 people collected using the consecutive sampling method [12].

Inclusion criteria: Breast cancer patients who were undergoing radiotherapy, aged over 18 years, with total HADS number ≥ 17.

Exclusion Criteria: Patients who were suffering from other psychiatric illnesses before being diagnosed with breast cancer and were not suffering from other chronic diseases, such as cardiovascular and lung disease.

Consent and explanation were given to the breast cancer patients who were treated with radiotherapy that meets the inclusion and exclusion criteria. Furthermore, patients were interviewed with a structured interview and provided with the opportunity to fill out the HADS and EORTC QLQ-C30 questionnaires at once, which only took about 5-10 minutes to complete the questionnaire [13].

HADS consists of 14 statements which are divided into 2 subscales, namely to assess anxiety (7 statements) and depression (7 statements), which the patients classify each statement in 4 value scales, from 0 (not at all) to 3 (very often). Higher values indicate problems. Patient answers were summed up separately, which is an assessment of anxiety and assessment for depression, with a minimum and a maximum number of 0 and 21 for each scale. The recommended cut points were: more than 16 states severe cases, the cutoff point 11-15 is a moderate case, the cutoff 8-10 states a mild case, and less than 7 is not a case of anxiety or depression [3], [9], [10], [14], [15].

Research and Treatment of Cancer Quality of Life Questionnaire-C30 (EORTC QLQ-C30) is an integrated system to assess the quality of life of cancer patients who participated in clinical trials. EORTC QLQ-C30 combines various scales such as functional, symptom, global health status and the financial impact caused by the disease [16], [17], [18].

Statistical analysis

Sapphiro-Wilk test was performed to determine the normality distribution of the data. Furthermore, Pearson test was conducted for analysis. Both of these tests were carried out via SPSS 22 program.

Results

Characteristics of Samples and Basic Data for Test Variables

The characteristics of this research subject are displayed in Table 1. From the table, it can be seen that the average age of the subject was 50.60 years with a standard deviation of 8.831 years, and a minimum age of 33 years and a maximum of 69 years.

Table 1: The demographic characteristic of the research subject

Variable	Mean/f	SD/%
Age	50.60	8.831
Education Level:		
Elementary	6	12.8
Junior High School	8	17.0
Senior High School	20	42.6
Undergraduate	12	25.5
Postgraduate	1	2.1
Marital Status		
Single	1	2.1
Married	46	97.9
Occupational Status		
Work	27	57.4
Jobless	20	42.6
Score	*21.19	1.930
Score	**44.673	8.7611
Score	***53.860	8.5166
Score	****21.19	1.930

*HADS Score; **SS/I; ***FS; ****GHS/QoL.

The most education level recorded is in senior high school with 20 people (42.6%). The most common marital status is married to many as 46 people (97.9%). And the most occupational status is working for 27 people (57.4%). The overall HADS score was found to be a minimum of 19 and a maximum of 27 with 21.19 and a standard deviation of 1.930. Based on the results of the normality test, using the Saphiro-Wilk test, the p-value = 0.001 ($p < 0.05$), so it can be concluded that the data were not normally distributed. Therefore, the data were transformed using the mathematical formula 1/*Log* (*Log*$^{(data)}$) and tested for the normality again. Finally, it was proven to be normally distributed with $p = 0.068$ ($p > 0.05$).

The overall subject SS/I score was a minimum of 17.9 and a maximum of 64.1 with a mean of 44.673 and standard deviation of 8.7611. These data were normally distributed, referred to the results of Saphiro-Wilk test with $p = 0.141$ ($p > 0.05$). The overall subject FS score was a minimum of 33.4 and a maximum of 80 with a mean of 53.860 and standard deviation of 8.5166. Based on the results of the data normality test using Saphiro-Wilk, the data were normally distributed with $p = 0.208$ ($p > 0.05$).

The overall GHS/QoL score was a minimum of 16.6 and a maximum of 75 with a mean of 21.19 and a standard deviation of 1.930. From the results of the normality test using Saphiro-Wilk, it was found that the value of $p = 0.141$ ($p > 0.05$), so it can be concluded that the data is normally distributed.

The Correlation between hands and SS / I

Based on Table 2, it can be seen that the correlation between the HADS score and the Scales/Items (SS/I) Symptom score was obtained with $p < 0.005$ which showed that the correlation between the HADS score and the Symptom scales (SS) score is significant. The Pearson correlation value of 0.400 indicates a positive correlation with moderate correlation strength ($r = 0.4- < 0.6$).

Table 2: The correlation between HADS and SS/I

Variable	x̄	SD	*r*	*p*
HADS Score	21.19	1.930	0.00	*0.003
SS/I Score	44.673	8.7611		

*Pearson Correlation Test.

The Correlation between hands and FS

Table 3 reveals that the correlation between HADS scores and Functional scales (FS) scores resulted in p-value > 0.05 which indicates that the correlation between HADS scores and Functional scales (FS) scores is not significant. The Pearson correlation value of -0.155 showed a negative correlation with a very weak correlation strength ($r = 0.0- < 0.2$).

Table 3: The correlation between HADS and FS

Variable	x̄	SD	*r*	*p*
HADS Score	21.19	1.930	-0.155	*0.148
FS Score	53.860	8.5166		

*Pearson Correlation Test.

HADS correlation with GHS/QoL

Based on Table 4, it can be seen that the correlation between the HADS score and the Global health status (QoL) score is obtained with the value of $p < 0.05$ which indicates a significant correlation between the HADS score and the Global health status (QoL) score. The Pearson correlation value of -0.267 showed a negative correlation with the strength of a weak correlation ($r = 0.2 < -0.4$) in a negative direction.

Table 4: The correlation between HADS and Global Health Status/QoL

Variable	x̄	SD	*R*	*p*
Skor HADS	21.19	1.930	-0.267	*0.035
Skor GHS/QoL	40.598	13.3041		

*Pearson Correlation Test.

Discussion

This research is a correlative analytic study with a cross-sectional approach which is describing and analysing a situation at a certain time. In this case, the analysis conducted was a correlation between effective psychopathology and quality of life in breast cancer patients who were undergoing radiotherapy using the Hospital Anxiety and Depression Scales (HADS) to assess the affective psychopathology and the European Organization for Research and Treatment of Cancer Quality of Life Questionnaire-C30 (EORTC QLQ-C30) to assess quality of life. The research sample was obtained by nonprobability consecutive sampling method [14].

Based on the result of the research, the demographic characteristics of the study subjects were found by previous research. Based on the demographic characteristics of cancer patients observed, the average age of patients with cancer was 53.04 ± 13.8, for the most common marital status is married as many as 280 people (84.8%), while for education is different from this study where the most common is primary education, as many as 143 people (43.3%) [1].

The study conducted by Sharma and Zhang found the mean age of 51.92 (SD = 10.178) years, for the highest marital status was married as much as 85% [19]. Likewise, with the study conducted by Winnie, the demographic characteristics were found to have the average age of 52.75 (SD = 11.73) years, and the most marital status was married as much as

65.5%, but from a slightly different job status which was jobless as much as 74.7% [4].

This research found a significant correlation between the HADS score and the Scales/Items (SS/I) Symptom. The Pearson correlation value also shows a positive correlation with moderate correlation strength. This can be concluded that the higher the HADS, the higher the symptom scale in patients. This shows the understanding between the HADS questionnaire and the symptom scale on EORTC QLQ-30. According to Fatiregun et al., which the research was aimed to examine the relationship between psychopathology and symptom scale, the mean value of participants showed that those who suffered from psychopathology had a higher symptom scale than those who were not having psychopathology. The significant differences were found in the fatigue domain, pain, insomnia, loss of appetite, diarrhoea, and financial problems [20].

However, the correlation between HADS scores and Functional scales (FS) scores was not significant. Moreover, Pearson correlation value showed a negative correlation with very weak correlation strength. This shows that the higher the HADS, it results in a decrease in the function scale. This is likely due to the minimum number of research subjects. This is by the research result from Sharma et al., has reported. It was discovered that anxiety and depression are not only limiting the treatment time but also extending the success of management. Depression and anxiety are not only affecting the quality of life but also affecting the adherence to anticancer management, which is associated with longer hospitalisations and can lead to a poor prognosis.

Moreover, the limitations of daily activities, disability, poor prognosis, exhausting side effects, and social isolation can result in anxiety. This will interfere with the ability to maintain everyday life or self-care, the coping process leads to negative perceptions about self, life and the future, despair, and finally, the patient shows depressive symptoms. Greater psychological morbidity in cancer patients tends to accelerate disease progression and shorter survival [19]. Similarly, Fatiregun et al., also found that psychopathologists showed a lower mean value to the function scale, which includes physical, emotional, social and cognitive functions [20].

In the other hand, a significant correlation between the HADS score and the Global health status (QoL) score was obtained. Also, the Pearson correlation value showed a negative correlation with the strength of the weak correlation. It shows that the higher the HADS, it will lead to a decrease in quality of life. This is by research conducted by Hutter, showed a significant correlation between HADS and the quality of life of breast cancer patients with a value of r = -0.207 [3]. Frick also discovered that effective psychopathology was significantly correlated with a decrease in quality of life in cancer patients [6].

To date, this research is the first study conducted in Indonesia to use HADS with a total cut-off score of ≥ 17, which according to a study conducted by Ozalp in Turkey, total HADS score with a cut-off value of ≥ 17 was very optimal in identifying cases of affective psychopathology such as major depression. And this cut-off value has a sensitivity of 0.70 and a specificity of 0.80. HADS has also been recommended as a screening tool for affective psychopathology for breast cancer patients [11].

In conclusion, this research indicated a significant correlation between affective psychopathologists on the quality of life of breast cancer patients undergoing radiotherapy at Vina Cancer Center Medan Hospital with $p = 0.035$ ($p < 0.05$) and $r = -0.267$ with negative direction. It indicates that the higher the HADS, it will lead to a decrease in quality of life. Moreover, the screening process must be considered for the possibility of effective psychopathological comorbidity which is very important since the high risk of depression and anxiety in cancer patients, to improve the quality of life of patients. Finally, good cooperation is needed between the oncology specialists and psychiatrist to improve their quality of life.

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Ethical Aspects and Conflict of Interest

Authors declare that there is no conflict of interest towards this research and the procedure conducted was in accordance to the ethical standards.

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