Relationship between Demographic Characteristics and Anxiety Syndrome in Advanced-Stage Breast Cancer Patients

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Abstract

Background: Breast cancer is one of the most prevalent types of cancer worldwide and is associated with anxiety in over 40% of patients due to social factors, such as education level, occupation, and socioeconomic status. Therefore, this study aims to determine the relationship between demographic characteristics and anxiety syndrome in patients with advanced-stage breast cancer.

Methods: This correlational observational study used a cross-sectional approach. The analysis included 63 female subjects diagnosed with stage III-IV breast cancer and passed chemotherapy at least three times. Patients with pre-existing psychiatric diagnoses were excluded from this study. The anxiety syndrome severity was measured using the Generalized Anxiety Disorder-7 (GAD-7) questionnaire.

Results: The mean age of the patients in this study was 48.68±7.39 years; 87.3% were married, 58.7% were employed, and 41.3% had a low-income level. The highest educational level achieved was high school, with a proportion of 30.2% and the most common severity level of anxiety syndrome based on the GAD-7 was minimal anxiety at 42.9%. Spearman correlation tests indicated that age was not associated with anxiety syndrome ($r = -0.21$, $p = 0.115$), but educational level ($r = -0.284$, $p = 0.024$) and income ($r = -0.267$, $p = 0.034$) correlated with anxiety syndrome. According to the Eta test, employment status (F-value = 2.46, F-critical = 4) and marital status (F-value = 0.5, F-critical = 4) were unrelated to anxiety syndrome severity.

Conclusion: This study showed that higher education and income levels were associated with lower severity of anxiety syndrome. However, age, marital status, and employment status were not related to the severity of anxiety syndrome.

Keywords: anxiety, syndrome, breast cancer, outpatient, GAD-7

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Introduction

Breast cancer is one of the most prevalent types of cancer worldwide, with approximately 685,000 cases [1]. In Indonesia, breast cancer has the highest proportion of cases, accounting for 16.7% of all cancer diagnoses in the country [2]. Previous studies have shown that anxiety occurs in more than 40% of breast cancer patients [3], often associated with social factors such as economic status and age [4,5]. Cancer-related anxiety can increase feelings of pain, sleep disturbance, nausea and vomiting, reduced quality of life, uncertainty about life, concerns about treatment, fear of disease progression, death, and guilt [6]. The development of various investigations exploring the link between breast cancer and anxiety syndromes has sparked a growing interest in further understanding the relationship between the social characteristics of advanced-stage breast cancer patients and the anxiety syndrome they experience.

Method

Sample

The subjects were obtained through consecutive sampling, consisting of breast cancer patients undergoing chemotherapy at Haji Adam Malik Hospital in Medan from October 2022 to January 2023. The inclusion criteria required to participate in this study were (1) female gender, (2) age 16-80 years, (3) diagnosed with stage III-IV breast cancer, and (4) had undergone at least three cycles of chemotherapy. Subjects with diagnosed psychiatric disorders and those who did not give consent were excluded. Based on the sample size calculation for correlation studies, 63 subjects were required for the analysis [7].

Procedure

The screening was conducted on breast cancer patients who visited the oncology surgery department at Haji Adam Malik Hospital in Medan to rule out the presence of mental disorders using the Indonesian version of the MINI-ICD10. The subjects were provided with explanations about the study, and only subjects who gave their consent were included. Interviews were conducted to obtain demographic data from the subjects. Furthermore, the patients were given a GAD-7 instrument to assess the severity of the anxiety syndrome experienced.

Measurement Tools

Generalized Anxiety Disorder-7 (GAD-7)

Generalized Anxiety Disorder-7 (GAD-7) is a valid and efficient tool for screening and assessing the severity of Generalized Anxiety Disorder (GAD). The tool evaluates an individual's anxiety level over the past two weeks. The scale consists of 7 items, and response options range from 0 (not at all) to 3 (nearly every day). Example items include feeling unable to stop or control worrying and feeling like something terrible might happen [8]. The GAD-7 scale has high validity and reliability for measuring anxiety, with Cronbach's alpha values of 0.94 and 0.85, indicating its accurate results. The scale has cut-off values of 0-4, 5-9, 10-14, and 15-21 for minimal, mild, moderate, and severe anxiety [9,10].

Mini International Neuropsychiatry Interview (Version MINI ICD 10)

The Mini International Neuropsychiatric Interview (MINI-ICD 10) is a short structured diagnostic interview instrument developed by psychiatrists and physicians in the United States and Europe for psychiatric disorders based on the DSM-IV and ICD-10 criteria. The administration of MINI-ICD 10 takes approximately 15 minutes, as it is designed to fulfil the needs of brief but accurate structured psychiatric interviews [11].

Data Analysis

The categorical independent variables in this study were marital, educational, employment, and income levels, while the numeric independent variable was age. The dependent variable was the degree of anxiety syndrome based on the GAD-7. Spearman correlation tests were performed for ordinal independent variables such as education and income level and numeric variables, namely age. Meanwhile, Eta correlation tests were conducted for nominal scale independent variables: marital and employment

statuses. Data analysis was aided by the Statistical Package for the Social Sciences (SPSS) software [12].

Ethics approval and consent to participate

This study was conducted following the patterns and norms of scientific study stipulated in the Helsinki Declaration. Respondents interviewed were given informed consent, with the information that the researchers would guarantee their data and confidentiality. This study obtained approval from the Research Ethics Committee of the Faculty of Medicine, University of Northern Sumatra, with letter number 40/KEPK/USU/2023, dated January 05, 2023.

Results

Table 1 shows the demographic characteristics of breast cancer patients who participated in this study. The mean age of the patients was 48.68±7.39 years; 87.3% were married, 58.7% were employed, and 41.3% had a low-income level. The highest education level was high school graduates, with a proportion of 30.2%. The most common severity level of anxiety syndrome based on the GAD-7 was minimal anxiety at 42.9%.

Table 1. Characteristics of breast cancer patients

Characteristics	Mean±SD / n%
Age (years)	48.68±7.39
Marital status	
- Married	55 (87.3%)
- Single	8 (12.7%)
Job-status	
- Yes	37 (58.7%)
- No	26 (41.3%)
Education Level	
- Elementary School	12 (19)
- Junior High School	14 (22.2)
- Senior High School	19 (30.2)
- University	18 (28.6)
Income level	
- Low	26 (41.3)
- Moderate	13 (20.6)
- High	16 (25.4)
- Very high	8 (12.7)
Degree of anxiety syndrome (GAD-7)	
- At a minimum	27 (42.9)
- Mild	13 (20.6)
- Moderate	8 (12.7)
- Severe	15 (23.8)

Spearman correlation tests were performed on age, educational level, and income level variables concerning the degree of anxiety syndrome. Table 2 showed that age did not correlate with the degree of anxiety syndrome, but educational and income levels correlated.

Table 2. Spearman Correlation Test Results

Variable	r	*p* Value
Age (years)	-0.21	0.115
Educational Level	-0.284	0.024
Income Level	-0.267	0.034

*r = correlation coefficient

The results above indicated that educational and income levels had a negatively weak correlation with the degree of anxiety syndrome experienced. Therefore, higher education or income levels were associated with lower severity of anxiety syndrome.
Eta correlation tests were conducted on the variables of marital and employment statuses concerning the degree of anxiety syndrome. Based on the results in Table 3, the marital and employment statuses had calculated F values smaller than the tabled F value, indicating that the null hypothesis was accepted. This revealed that no relationship was found between marital and employment statuses concerning the degree of anxiety syndrome.

Table 3. Eta Correlation Test Results

Variable	F_{count}	F_{table}
Marital Status	2.46	4
Employment Status	0.5	4

Discussion

This study found no association between age and the severity of anxiety syndrome experienced, which was different from other reports, including those conducted on pre-chemotherapy cancer patients [13,14]. The variation in results was attributed to several factors, such as different sampling strategies, research settings, and cultural differences. Meanwhile, educational and income levels were found to be correlated with the degree of anxiety syndrome. This indicated that higher educational levels correlated with lower degrees of anxiety syndrome. This was consistent with Vivek et al., which showed that patients with lower education or illiteracy tended to experience higher anxiety levels [5]. Other studies indicated that women with sufficient education tended to be more aware of their cancer condition, accompanied by the ability to obtain information and access to optimal treatment, thereby reducing anxiety [15].
A similar trend applied to income level, as studies showed that lower-income patients experienced anxiety within the first year after breast cancer diagnosis [16]. In contrast to other studies that state there is no relationship between income and anxiety symptoms, they found a relationship with employment status [17].
It was also discovered that marital and employment statuses were not associated with anxiety syndrome [5,17,18]. The results of this study contrasted with previous studies that did not find a relationship between marital status and employment with anxiety syndrome [15]. However, there were variations due to cultural and varying insurance policies in different countries.

Common medical conditions can occur alongside psychological disorders, including anxiety. This study demonstrated that certain demographic characteristics of patients can be associated with the severity of anxiety syndrome experienced. These results were expected to facilitate early detection and good multidisciplinary collaboration between oncology and psychiatry.

Conclusions

This study showed that higher education and income levels were associated with lower anxiety syndrome severity, while age, marital status, and employment status had no relationship.

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Transparency declaration

The authors declare no competing interests.

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