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ORIGINAL ARTICLE

Breast cancer patients' quality of life during chemotherapy at Royal Prima General Hospital

Chanli Saragih[1], Christina J.R.E. Lumbantobing[2,3]*, Linda Chiuman[2,3], Dhini Sylvana[2,3], Syahroni Ibnu[2,3], Jeri Yuliansyah[2,3], Ari Rahman Iskandar[2,3]

ABSTRACT

Background: Breast cancer is the most prevalent malignancy and a leading cause of cancer-related death among women worldwide. Chemotherapy, a primary treatment modality, often significantly impacts patient quality of life (QoL). This study aimed to analyze the QoL of breast cancer patients undergoing chemotherapy at Royal Prima General Hospital.
Methods: We employed a descriptive-analytic cross-sectional design with a purposive sample of 51 patients. Data were collected using a respondent characteristics form and the validated Indonesian version of the WHOQOL-BREF instrument.
Results: Results indicated the majority of respondents were aged 36-60 years (86.3%), married (100%), had a junior high school education (49%), and had a disease duration of 1-24 months (82.4%). Overall QoL for most patients was moderate (60.8%), followed by good (35.3%) and poor (3.9%). Cross-tabulation analysis revealed varied QoL distribution across age, marital status, education, disease duration, and cancer stage.
Conclusion: We conclude that the QoL of breast cancer patients undergoing chemotherapy at Royal Prima General Hospital is predominantly at a moderate level, indicating a need for focused attention on psychosocial support, health education, and symptom management to holistically improve patient well-being during treatment.

Keywords: breast cancer, chemotherapy, quality of life, WHOQOL-BREF

Introduction

Breast cancer is the most commonly diagnosed cancer globally among women and remains a leading cause of cancer-related mortality. GLOBOCAN 2022 estimates over 2.3 million new breast cancer cases and approximately 670,000 deaths annually, representing a major global health burden.[1] In Southeast Asia, including Indonesia, breast cancer incidence shows a concerning upward trend, influenced by factors such as lifestyle changes, reproductive patterns, and limitations in early detection and treatment access.[2] Nationally, the Indonesian Ministry of Health reports breast cancer as the most common cancer in women, comprising 16.6% of all female cancer cases, with high mortality rates often due to late diagnosis.[3] This highlights the urgency for comprehensive management that addresses not only curative but also palliative and supportive aspects to maintain patient quality of life throughout a long and challenging treatment journey.

Affiliation
[1]Undergraduate Program in Medical Science, Universitas Prima Indonesia
[2]Department of Clinical Medicine, Universitas Prima Indonesia
[3]Center of Excellence for Phyto Degenerative & Lifestyle Medicine, Universitas Prima Indonesia

***Corespondence:**
christinajresmaraldalumbantobing@unprimdn.ac.id

Locally, Royal Prima General Hospital, a referral hospital in North Sumatra, treats numerous breast cancer patients undergoing chemotherapy as part of their treatment protocol. Chemotherapy, while effective in reducing tumor size and eliminating cancer cells, is frequently associated with severe physical and psychological side effects. These include nausea, vomiting, extreme fatigue, alopecia, neuropathy, immunosuppression, and disturbances in body image and emotional distress.[4] These multidimensional impacts can significantly reduce a patient's quality of life, potentially affecting treatment adherence, clinical outcomes, and survival. Quality of life in the health context, as defined by the World Health Organization (WHO), is an individual's perception of their position in life within the context of their culture and value systems, and in relation to their goals, expectations, standards, and concerns.[5] This concept encompasses four primary domains: physical health, psychological state, social relationships, and environment.

Previous studies have examined QoL in breast cancer patients across various settings. Research by Hasanah et al.[6] report that a large proportion of breast cancer patients undergoing chemotherapy have impaired or only moderate QoL, particularly in physical and emotional domains. Meanwhile, Hajj et al.[7] found symptoms like fatigue, pain, and sleep disturbances were highly prevalent and correlated with lower QoL scores. However, specific data on the profile and determinants of QoL for breast cancer patients receiving chemotherapy in hospital settings in Medan, particularly at Royal Prima General Hospital, remain limited. Mapping this condition is necessary to design targeted, evidence-based supportive interventions tailored to local needs. This study aimed to analyze the QoL of breast cancer patients undergoing chemotherapy at Royal Prima General Hospital, with specific objectives to describe patient characteristics (age, marital status, education, disease duration, stage, chemotherapy cycles) and to assess QoL based on the four WHOQOL-BREF domains (physical, psychological, social, environmental).

Method

This study used a quantitative descriptive-analytic approach with a cross-sectional design. The research was conducted in the Chemotherapy Unit of Royal Prima General Hospital over a defined period. The study population included all breast cancer patients undergoing chemotherapy at the hospital, totaling 60 individuals. A purposive sample was selected based on inclusion criteria: female patients aged ≥ 18 years, diagnosed with stage I-III breast cancer, currently receiving chemotherapy, and willing to participate by providing informed consent. Exclusion criteria included patients not undergoing chemotherapy and those unwilling to participate. Sample size calculation using the Slovin formula with a 5% margin of error yielded a minimum sample of 52 respondents. In practice, data from 51 eligible respondents were collected.

Data collection utilized two instruments: a respondent characteristics form and the standard Indonesian version of the WHOQOL-BREF questionnaire, adapted and validated by Purba et al. (2018). The WHOQOL-BREF consists of 26 questions covering four domains: physical health (7 items), psychological state (6 items), social relationships (3 items), and environment (8 items), plus two general questions on overall QoL and health perception. Each domain score is calculated by transforming the raw score to a 0-100 scale, where a higher score indicates better QoL. For descriptive analysis, the total score was categorized into three levels: good (score > upper median), moderate (score around the median), and poor (score < lower median), based on the study data distribution. Primary data were collected directly by researchers assisted by enumerators after obtaining ethical approval and institutional permission. Data analysis involved univariate analysis to describe frequency and percentage for each variable, and bivariate analysis using cross-tabulation to examine the relationship between respondent characteristics and QoL.

Results

Respondent characteristics showed the majority of patients (44 or 86.3%) were in the 36-60 year age group, with only 7 (13.7%) aged 26-35 years. All respondents (100%) were married. Regarding education, nearly half (25 or 49.0%) had a junior high school education as their highest level, followed by senior high school (37.3%), elementary school (7.8%), and no formal schooling (5.9%). Disease-related characteristics indicated the most common duration since diagnosis was 1-12 months and 12-24 months, each with 21 respondents (41.2%). The most frequent cancer stage was stage II (20 or 39.2%), followed by stage I (31.4%), stage III (17.6%), and stage IV (11.8%). Complete respondent characteristics are presented in Table 1. Based on measurement with the WHOQOL-BREF, the majority of respondents (31 or 60.8%) had moderate QoL. Eighteen respondents (35.3%) had good QoL, and only 2 (3.9%) had poor QoL. This distribution indicates that most patients maintained an adequate level of well-being despite undergoing chemotherapy.

Cross-tabulation analysis examined QoL distribution across characteristic groups. Within the 36-60 year age group (44 respondents), most had moderate QoL (24 or 54.5%), followed by good (40.9%) and poor (4.5%). All seven respondents aged 26-35 years had moderate QoL (100%). Regarding marital status, as all respondents were married, the QoL pattern mirrored the overall distribution. Analysis by education revealed notable variation. Among respondents with junior high school education (25 respondents), most had moderate QoL (17 or 68.0%). Among those with senior high school education (19 respondents), distribution was nearly even between good and moderate categories (each 47.4%), with a small proportion in the poor category (5.3%).

Table 1. Characteristics of breast cancer patients undergoing chemotherapy (n=51)

Characteristic	Frequency (n)	Percentage (%)
Age		
26-35 years	7	13.7
36-60 years	44	86.3
Marital Status		
Married	51	100.0
Not Married	0	0.0
Highest Education		
No Schooling	3	5.9
Elementary School	4	7.8
Junior High School	25	49.0
Senior High School	19	37.3
Disease Duration		
1-12 months	21	41.2
12-24 months	21	41.2
25-36 months	8	15.7
>36 months	1	2.0
Breast Cancer Stage		
I	16	31.4
II	20	39.2
III	9	17.6
IV	6	11.8

Regarding disease duration, in the 1-12 month group (21 respondents), most had moderate QoL (14 or 66.7%) and 6 (28.6%) had good QoL. A similar pattern was observed in the 12-24 month group (21 respondents) with 12 (57.1%) moderate and 8 (38.1%) good QoL. Analysis by cancer stage showed no respondents with stage I or II had poor QoL. In stage I (16 respondents), QoL distribution was evenly split between good and moderate (50% each). In stage II (20 respondents), most had moderate QoL (70%) and 30% had good QoL. In stage IV (6 respondents), 66.7% had moderate and 33.3% had poor QoL. Complete cross-tabulation data are presented in Table 2.

Table 2. Cross-tabulation of respondent characteristics with quality of life (n=51)

Characteristic	Good (n)	Good (%)	Moderate (n)	Moderate (%)	Poor (n)	Poor (%)
Age						
26-35 years (n=7)	0	0.0	7	100.0	0	0.0
36-60 years (n=44)	18	40.9	24	54.5	2	4.5
Education						
No Schooling (n=3)	0	0.0	2	66.7	1	33.3
Elementary (n=4)	1	25.0	3	75.0	0	0.0
Junior High (n=25)	8	32.0	17	68.0	0	0.0
Senior High (n=19)	9	47.4	9	47.4	1	5.3
Disease Duration						
1-12 months (n=21)	6	28.6	14	66.7	1	4.8
12-24 months (n=21)	8	38.1	12	57.1	1	4.8
25-36 months (n=8)	3	37.5	5	62.5	0	0.0
>36 months (n=1)	1	100.0	0	0.0	0	0.0
Cancer Stage						
I (n=16)	8	50.0	8	50.0	0	0.0
II (n=20)	6	30.0	14	70.0	0	0.0
III (n=9)	4	44.4	5	55.6	0	0.0
IV (n=6)	0	0.0	4	66.7	2	

Discussion

This study reveals that most (60.8%) breast cancer patients undergoing chemotherapy at Royal Prima General Hospital have moderate QoL. This finding aligns with previous research in similar contexts. An Ethiopian study found poor overall QoL (mean score 44.32) among cancer patients on chemotherapy, lower than prior research in Nepal (85.5), India (61.9), and Pakistan (57.4), with 43% having good QoL.[8] A 2009 Iranian study reported fairly favorable QoL in 66% of patients, correlating positively with more chemotherapy cycles.[9] The "moderate" category may indicate a state where patients maintain daily function and social relationships, yet still experience significant symptom burden and psychological challenges from the disease and its treatment. The predominance of moderate, rather than poor, QoL is a positive indicator that many patients demonstrate resilience and adaptive capacity. This may be supported by factors such as family support (given 100% of respondents were married), spiritual belief, or social support from healthcare workers and fellow patients.

However, 3.9% of patients with poor QoL require specific attention. This group likely experiences severe physical symptom burden, significant psychological distress, or socio-economic resource limitations. Cross-tabulation shows that both respondents with poor QoL were from stage IV and low education groups. Advanced stage (IV) is often associated with more complex symptoms, poorer prognosis, and a heavier palliative treatment burden, which can directly lower QoL.[10] Lower education may limit health literacy, understanding of the disease and treatment, and ability to access appropriate support information and resources.[11] Targeted interventions are essential for this vulnerable group, including intensive counseling, aggressive symptom management, and patient navigator support.[8]

The distribution of QoL by age shows that all younger respondents (26-35 years) were in the moderate category, with none achieving good QoL. This is notable because younger age is often associated with better physical resilience. However, in breast cancer, diagnosis at a young age is frequently linked to greater psychosocial burden, including concerns about future, career, family, reproductive function, and more dramatic body image changes.[12–14] They may also have less mature coping mechanisms compared to older individuals with more life experience. This finding is consistent with previous research which reported that younger patients may experience more persistent decline in QoL after chemotherapy.[14] Therefore, psychosocial support approaches should consider the specific issues faced by patients of productive age.

The factor of marital status, although lacking variation in this study, is often considered an important source of social support.[15] Emotional and instrumental support from a spouse can buffer disease-related stress. However, marriage can also be an additional stressor if the partner is insufficiently supportive or if there are concerns about economic burden and family roles.[15,16] The finding that most married patients still had moderate QoL suggests family support alone may be insufficient without structured professional intervention to manage chemotherapy side effects and psychological distress.

Findings related to education indicate that respondents with senior high school education tended to have better QoL distribution (nearly even between good and moderate) compared to lower education groups. Higher education generally correlates with better health knowledge, ability to understand treatment instructions, self-advocacy, and access to information resources that support health decision-making.[17] Conversely, respondents with no formal schooling showed a poorer QoL profile (all moderate or poor). This underscores the importance of delivering health education materials using methods and language appropriate for all patient literacy levels, particularly those with limited formal education.

Duration of disease (1-24 months) showed no stark difference in QoL distribution. Both the 1-12 month and 12-24 month groups were dominated by moderate QoL. This suggests adaptation to diagnosis and treatment may occur within the first year, yet challenges in maintaining optimal QoL persist with continued therapy. Chemotherapy has cumulative effects, where side effects like fatigue and neuropathy can worsen with increasing cycles.[18,19] Therefore, QoL monitoring should be a routine part of chemotherapy visits, not only at initial diagnosis.

Differences based on cancer stage were clear, with no stage I-III patients in the poor category, while one-third of stage IV patients had poor QoL. This aligns with clinical expectations. Patients with early-stage (I-II) disease receiving adjuvant or neoadjuvant chemotherapy generally have relatively better physical condition and higher hope for cure, which can be protective factors for QoL.[20] Conversely, palliative chemotherapy for stage IV aims to control symptoms and prolong life, not to cure. The symptom burden from metastatic disease, combined with treatment side effects and the psychological burden of facing a

terminal illness, can collectively suppress QoL significantly. Integrated early palliative care is crucial for this group to optimize their QoL.[21,22]

This study has several limitations. The cross-sectional design cannot assess longitudinal QoL changes throughout chemotherapy. The relatively small sample size from a single site limits generalizability. Furthermore, QoL measurement relied solely on the general WHOQOL-BREF instrument; using cancer-specific tools like the EORTC QLQ-C30/BR23 might provide more detailed insight into symptoms and issues specific to breast cancer. Nevertheless, these findings provide a valuable preliminary foundation for developing more comprehensive patient support programs at Royal Prima General Hospital.

Conclusion

We conclude that the quality of life of breast cancer patients undergoing chemotherapy at Royal Prima General Hospital is predominantly (60.8%) moderate, with a small proportion (3.9%) in the poor category, primarily comprising patients with stage IV disease and low education. Younger age (26-35 years), although small in number, was associated with QoL in the moderate category without reaching good, indicating a specific psychosocial vulnerability in this group. Higher education (senior high school) showed a tendency toward better QoL distribution. Recommendations are as follows: First, for the hospital, to develop and implement routine QoL screening programs using instruments like the WHOQOL-BREF or more specific tools, and to establish structured psychosocial support and health education services, particularly for vulnerable groups such as those with advanced stage, low education, and younger patients. Second, for patients and families, to actively communicate with healthcare providers about difficulties and complaints, and to utilize peer support groups if available. Third, for future researchers, to conduct longitudinal studies with larger and more diverse samples to map QoL changes over the chemotherapy course and to explore other determinant factors such as social support, coping strategies, and financial toxicity.

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