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Overview of Nutritional Status in Patients with Hematologic Malignancies

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ABSTRACT

Background: Patients with hematological malignancies such as leukemia, lymphoma, and multiple myeloma are at high risk of developing nutritional disorders due to disease processes, therapy side effects, and decreased dietary intake. Malnutrition in cancer patients can worsen clinical conditions, reduce treatment response, increase the risk of complications, prolong hospitalization, and decrease quality of life.

Purpose: This study aimed to describe the nutritional status of patients with hematological malignancies at Arifin Achmad Regional Hospital, Riau Province.

Methods: This study used a quantitative descriptive design with a survey approach. Data were collected from January 13 to January 27, 2026 in the Seruni and Kenanga II wards. The sample consisted of 77 respondents selected using consecutive sampling. Nutritional status was assessed using the Modified Patient-Generated Subjective Global Assessment (mPG-SGA) and analyzed using univariate analysis.

Results: The results showed that the mean age of respondents was 40.69 years, the majority were male (55.8%), had senior high school education (46.8%), had income below the regional minimum wage (57.1%), and the most common diagnosis was leukemia (58.4%). Most patients experienced severe malnutrition (76.6%).

Conclusion: The majority of patients with hematological malignancies were in severe malnutrition condition. Therefore, routine nutritional screening and appropriate nutritional interventions are needed to improve patient outcomes.

Introduction

Hematological malignancies such as leukemia, lymphoma, and multiple myeloma are among the most prevalent types of cancer worldwide and contribute significantly to morbidity and mortality rates. According to the World Health Organization (WHO, 2023), the

global burden of cancer continues to increase, with hematologic cancers representing a substantial proportion of cases requiring complex and long-term treatment. Patients with hematological malignancies often experience various complications, one of the most common being malnutrition, which arises due to a



combination of factors including metabolic alterations, systemic inflammation, decreased appetite, disease progression, and side effects of treatments such as chemotherapy and radiotherapy (Thibault et al., 2021). Malnutrition in cancer patients has been widely reported to negatively affect clinical outcomes, including increased susceptibility to infections, delayed recovery, prolonged hospitalization, reduced tolerance to therapy, decreased quality of life, and higher mortality rates (Zhang et al., 2025). Furthermore, studies indicate that the prevalence of malnutrition in cancer patients ranges from 30% to 70%, with a significant proportion categorized as moderate to severe malnutrition, especially in patients with advanced disease stages.

Despite the growing body of literature on cancer-related malnutrition, most previous studies have predominantly focused on patients with solid tumors, while limited research has specifically explored hematological malignancies, particularly in local or regional healthcare settings. In addition, the utilization of standardized and validated assessment tools such as the modified Patient-Generated Subjective Global Assessment (mPG-SGA), which is considered a reliable instrument for evaluating nutritional status in cancer patients, is still not widely implemented in routine clinical practice in many hospitals (Kim et al., 2021). This indicates a clear research gap in the availability of comprehensive data describing the nutritional status of patients with hematological malignancies using validated tools within

specific institutional contexts. Therefore, this study presents a novelty by providing a detailed and systematic description of nutritional status among patients with hematological malignancies using the mPG-SGA instrument in RSUD Arifin Achmad, which contributes valuable local evidence to support early nutritional assessment and appropriate intervention strategies in clinical practice. Thus, this study aims to describe the nutritional status of patients with hematological malignancies based on mPG-SGA.

Methods

Research design

This study used a quantitative descriptive design with a cross-sectional approach. The study aimed to describe the nutritional status of patients with hematological malignancies based on the modified Patient-Generated Subjective Global Assessment (mPG-SGA) at a specific point in time.

Setting and samples

The study was conducted in the Seruni and Kenanga II wards of RSUD Arifin Achmad, Riau Province, Indonesia, from January 13 to January 27, 2026. The population included all patients diagnosed with hematological malignancies, including leukemia, lymphoma, and multiple myeloma. The sampling technique used was total sampling, where all eligible patients during the study period were included. A total of 77 respondents participated in this study. Inclusion criteria were patients diagnosed with hematological malignancies, aged ≥ 18 years, and

willing to participate. Exclusion criteria included patients with incomplete data or those who were not in stable condition during data collection.

Measurement and data collection;

The main variable in this study was nutritional status. Data were collected using the modified Patient-Generated Subjective Global Assessment (mPG-SGA) instrument, which is a validated tool specifically designed to assess nutritional status in cancer patients. The instrument includes components such as weight changes, dietary intake, nutrition impact symptoms, functional capacity, and physical examination. Data collection was carried out through direct interviews with patients and supported by medical record reviews. The instrument used in this study had undergone validity and reliability testing prior to data collection.

Data analysis;

Data were analyzed using univariate analysis. Numerical data such as age were presented using measures of central tendency (median), while categorical data including gender, education level, income, diagnosis, and nutritional status were presented in frequency distribution tables (n) and percentages (%).

1.1 Trustworthiness/rigor (applies to qualitative studies)

This section is not applicable, as this study used a quantitative descriptive design.

Ethical considerations

This study was conducted after obtaining ethical approval from the Health Research Ethics Committee of Universitas Hang Tuah Pekanbaru with approval number 056/KEPK/UHTP/XII/2025. All respondents were informed about the purpose of the study and provided informed consent prior to participation. Confidentiality and anonymity of respondents were maintained throughout the study.

Results

A total of 77 respondents participated in this study. The mean age of respondents was 40.69 years, with ages ranging from 19 to 66 years. Most respondents were male (55.8%), while 44.2% were female. Based on educational level, the majority of respondents had senior high school education (46.8%), followed by college education (22.1%), junior high school (19.5%), and elementary school (11.7%). In terms of income, most respondents had income below the regional minimum wage (57.1%), while 42.9% had income equal to or above the regional minimum wage.

Table 1. Frequency Distribution of Gender, Education, Income, Medical Diagnosis in Hematological Malignancy Patients in the Seruni and Kenanga II Wards of Arifin Achmad Regional Hospital, Riau Province (n=77)

No	Variable		f	%
1.	Gender	Male	43	55,8
		Female	34	44,2
2.	Education	Elementary	9	11,7
		Junior High	15	19,5
		Senior High	36	46,8
		University	17	22,1
3.	Income	< Minimum Wage	44	57,1
		≥ Minimum Wage	33	42,9
4.	Diagnosis	Leukemia	45	58,4
		Lymphoma	23	29,9
		Multiple Myeloma	9	11,7
Total			77	100

Based on Table 1, the majority of respondents were male (55.8%). Most respondents had a senior high school education (46.8%), and more than half had income below the minimum wage (57.1%). The most common diagnosis was leukemia (58.4%).

Regarding medical diagnosis, the most common type of hematological malignancy was leukemia (58.4%), followed by lymphoma (29.9%), and multiple myeloma (11.7%). Nutritional Status of Patients with Hematological

Malignancies. Based on the assessment using the Modified Patient-Generated Subjective Global Assessment (mPG-SGA), the majority of patients experienced severe malnutrition (76.6%). The remaining respondents were classified into other nutritional status categories including moderate malnutrition, mild malnutrition, and normal nutritional status. These results indicate that nutritional problems are common among patients with hematological malignancies.

Table 2. Distribution of Nutritional Status Based on mPG-SGA

No	Nutritional Status	f	%
1.	Well-nourished	1	1,3
2.	Mild malnutrition	6	7,8
3.	Moderate malnutrition	11	14,3
4.	Severe malnutrition	59	76,6
Total		77	100

The results show that most patients experienced severe malnutrition (76.6%).

Discussion

The results of this study indicate that the majority of patients with hematological malignancies experienced severe malnutrition, accounting for 76.6% of the total respondents. This finding highlights that malnutrition is a significant clinical problem among patients with hematologic cancers. The high prevalence of severe malnutrition observed in this study is consistent with previous research, which reported that malnutrition affects approximately 30%-70% of cancer patients, with a higher prevalence in patients undergoing intensive treatments such as chemotherapy (Zhang et al., 2025).

Malnutrition in patients with hematological malignancies can be explained by several underlying mechanisms. Cancer-related metabolic changes, including increased energy expenditure and systemic inflammation, contribute to protein catabolism and muscle wasting. In addition, patients often experience decreased nutritional intake due to anorexia, nausea, vomiting, mucositis, and other treatment-related side effects (Thibault et al., 2021). These conditions ultimately lead to weight loss and deterioration in nutritional status. The use of chemotherapy in hematologic malignancies further exacerbates this condition by affecting gastrointestinal function and reducing appetite.

The findings also show that leukemia was the most common diagnosis among respondents. This condition is known to cause significant physiological stress and metabolic disturbances, which may worsen nutritional status. Furthermore, more than half of the respondents had income below the minimum wage, suggesting that socioeconomic factors may also play an important role in determining nutritional status. Limited financial resources can restrict access to adequate and nutritious food, thereby increasing the risk of malnutrition. This finding is supported by previous studies that identified socioeconomic status as a key determinant of nutritional status in cancer patients.

The high proportion of severe malnutrition identified using the mPG-SGA instrument emphasizes the importance of early and routine nutritional assessment in clinical settings. The mPG-SGA is a validated and widely used tool for assessing nutritional status in cancer patients, as it considers both subjective and objective components, including weight changes, dietary intake, symptoms, and functional capacity (Kim et al., 2021). Early identification of malnutrition allows healthcare providers to implement timely nutritional interventions, such as dietary counseling, oral nutritional supplementation, or enteral/parenteral nutrition, which can improve treatment tolerance and overall patient outcomes.

From a clinical perspective, the findings of this study have important implications for nursing and multidisciplinary care. Nurses play a

crucial role in early screening and monitoring of nutritional status, as well as in providing education and support to patients and their families. Integrating nutritional assessment into routine care for patients with hematological malignancies is essential to prevent further deterioration and to enhance quality of life.

However, this study has several limitations. First, the study used a descriptive design, which limits the ability to establish causal relationships between variables. Second, the study was conducted in a single hospital with a relatively limited sample size, which may affect the generalizability of the findings. Third, this study only used univariate analysis, so it did not explore relationships between variables such as socioeconomic status and nutritional status in depth. Therefore, future research is recommended to use analytical designs with larger sample sizes and to explore factors associated with malnutrition in patients with hematological malignancies.

Overall, this study provides important evidence that severe malnutrition is highly prevalent among patients with hematological malignancies. These findings underscore the need for early detection and comprehensive nutritional management as part of standard cancer care to improve clinical outcomes and patient well-being.

Implication and limitations

The findings of this study highlight the importance of routine nutritional assessment in patients with hematological malignancies. Early

identification of malnutrition can help healthcare professionals provide appropriate nutritional interventions and improve patient outcomes.

However, this study has several limitations. First, the study used a descriptive design, which only describes the nutritional status of patients without examining causal relationships. Second, the study was conducted in only one hospital, which may limit the generalizability of the results to other settings. Future research is recommended to explore factors associated with malnutrition in patients with hematological malignancies and evaluate the effectiveness of nutritional interventions.

Conclusion

This study described the nutritional status of patients with hematological malignancies at Arifin Achmad Regional Hospital, Riau Province. The results showed that most patients experienced severe malnutrition. These findings indicate that nutritional problems are common among patients with hematological malignancies. Therefore, regular nutritional screening and appropriate nutritional management are essential to support treatment outcomes and improve the quality of life of cancer patients.

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Author contribution

The author was responsible for the research design, data collection, data analysis, and manuscript preparation.

Conflict of interest

The author declares that there is no conflict of interest related to this study.

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