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Original Research

Description of The Standardized Nutrition Care Process for Inpatients at Bengkalis Regional General Hospital

Gambaran Proses Asuhan Gizi Terstandar pada Pasien Rawat Inap Di Rumah Sakit Umum Daerah Bengkalis

Savira Rahmadian[1*], Jasrida Yunita[1]
[1] Postgraduate Study Program in Public Health, Hangtuah University, Pekanbaru, Indonesia

* Email corresponding author: dianivira07@gmail.com

Abstract: *The Standardized Nutrition Care Process (PAGT) is a systematic approach in clinical nutrition services based on the Nutrition Care Process (NCP). This study aims to describe the implementation of PAGT at Bengkalis Regional General Hospital using secondary data from 2025, with a total sample of 4,445 patients. The study employed a quantitative descriptive design. The results showed that the assessment stage was dominated by middle-aged adults (41%) with normal nutritional status (57.8%); however, there were still cases of overnutrition at 27.6%. Nutritional diagnoses were predominantly in the NC-2.2 domain (54.3%), related to changes in laboratory values. The most common intervention was a combination diet (80.2%), while monitoring was mainly focused on anthropometric measurements (57.7%). Evaluation indicated that 69.8% of patients achieved the intervention goals. It can be concluded that the implementation of PAGT at Bengkalis Regional General Hospital has been carried out comprehensively, although there are still weaknesses in data standardization and documentation.*

Keywords: ADIME, Clinical Nutrition Evaluation, Standardized Nutrition Care Process (PAGT)

1. INTRODUCTION

Hospital nutrition service activities include: first, outpatient nutrition care, second, inpatient nutrition care, third, food service provision, and fourth, research and development (Ministry of Health, 2013). Hospital nutrition services are a crucial component in efforts to improve the quality of healthcare services and accelerate patient recovery. The Standardized Nutrition Care Process (PAGT)/ Nutrition Care Process (NCP) is an approach used to provide nutrition services systematically through the stages of assessment, diagnosis, intervention, and monitoring and evaluation (1).

According to the Ministry of Health Regulation No. 78/2013, the Nutrition Care Process (NCP) is a systematic approach to delivering quality care through a series of organized activities, ranging from identifying nutritional needs to providing services to meet those needs. Inpatient nutrition services encompass a comprehensive process that begins with nutrition assessment, nutrition diagnosis, and nutrition interventions (including planning, food provision, nutrition education, and counseling), followed by nutrition monitoring and evaluation (2).

The implementation of the NCP plays a crucial role in ensuring the quality of nutrition services because it allows for accurate problem identification and targeted, evidence-based interventions. Furthermore, using this standardized approach has been shown

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to support improvements in the quality of clinical documentation and communication between healthcare professionals, thereby positively impacting patient safety and outcomes (3)

However, the implementation of the NCP in hospitals still faces various obstacles. Recent research indicates that the primary barriers include time constraints, heavy workloads for dietitians, a lack of training, and suboptimal or undigitized documentation (4). Furthermore, organizational factors such as limited resources, a lack of institutional support, and inadequate training and monitoring also hinder its consistent implementation (5).

Nutrition services in hospitals are implemented through the Nutrition Care Process (NCP), a systematic approach that falls under the responsibility of dietitians as healthcare professionals. The role of these professionals focuses on promotive, preventive, and curative efforts, particularly those related to food and nutrition management across hospitals, private practices, and other healthcare facilities. The primary goal of this service is to ensure that patients' nutritional needs are optimally met, as food is a basic human need that plays a crucial role in disease prevention and recovery. Each stage is interconnected, progressing from data collection and analysis to determine nutritional problems to intervention planning and evaluating its success in improving the patient's condition (6).

Research by Lewis et al. (2021) demonstrated that effective implementation of the NCP, particularly the link between nutrition diagnosis and intervention, significantly improves the resolution of patient nutritional problems, confirming that the quality of each stage directly impacts clinical outcomes (7). Additionally, Guenter et al. (2023) revealed that dietitians play a key role in conducting nutrition assessments across various healthcare facilities, finding that standardized assessments and diagnoses are crucial for identifying malnutrition and determining appropriate interventions. Moreover, a recent study demonstrated that involving dietitians in multidisciplinary teams through an NCP-based approach significantly enhances the fulfillment of patients' energy and protein needs. This underlines that NCP implementation not only improves nutritional status but also elevates the overall quality of healthcare services (6).

According to Pranoto and Susetyowati (2022), the majority of dietitians (62.5%) hold a positive perception regarding NCP implementation in hospitals. Statistical analysis revealed that education levels and the provision of nutrition screening training to other healthcare professionals were significantly associated with these perceptions ($p=0.040$ and $p=0.027$, respectively). While NCP implementation across Indonesian hospitals is generally well-standardized and uniform, further development is required. Specifically, establishing a more aligned and standardized understanding among all clinical dietitians in Indonesia is essential to enhance the quality of patient care (8).

Bengkalis Regional General Hospital, as a referral hospital in Bengkalis Regency, serves a large patient volume predominantly characterized by non-communicable diseases and an elderly population. This necessitates optimal and standardized nutrition services. Consequently, this study aimed to comprehensively describe the implementation of the Nutrition Care Process (NCP) at the hospital, utilizing secondary data from 2025

2. METHODS

This research was conducted at Bengkalis Regional General Hospital in April 2026. The study employed a mixed-methods approach with a convergent parallel design, comprising interviews with inpatient clinical dietitians and the analysis of secondary data from adult patients hospitalized in 2025. The collected data focused on evaluating the implementation of the Nutrition Care Process (NCP) at the hospital, including total patient volume and detailed data across the four NCP domains: assessment, nutrition diagnosis, intervention, and monitoring and evaluation.

The informants in this study were inpatient clinical dietitians working the morning shift. Bengkalis Regional General Hospital employs six inpatient clinical dietitians: four assigned to the morning shift, one to the afternoon shift, and one on a day off. Interview data were analyzed qualitatively, while secondary data were analyzed univariately using frequency distributions and percentages. Statistical analyses were executed using Microsoft Excel and SPSS software.

3. RESULTS

Implementation of Nutrition Assessment of Standardized Nutrition Care Process in Inpatient Care at Bengkalis Regional Hospital

This study involved interviews with four informants, all of whom were inpatient clinical dietitians working the morning shift. The interviews focused on how the nutrition assessment process was conducted on patients and how it was implemented across all inpatients. Based on the interviews, the informants stated that nutrition assessment is carried out as part of routine services for inpatients, taking into account each patient's clinical condition and individual needs. The informants stated that:

Inpatient Clinical Dietitian 1: "*Our nutrition assessment process involves several steps, including reviewing the patient's nutrition history, biochemical data, anthropometric measurements, nutrition-focused physical findings, and client history. While we essentially perform this assessment on all patients, in practice, it is sometimes tailored to the patient's clinical condition or specific medical diagnosis*."

Inpatient Clinical Dietitian 2: "*When an inpatient is admitted, an initial screening process is carried out by the Emergency Department nurse. This nutrition screening utilizes the Malnutrition Screening Tool (MST), where a score of <2 indicates no risk of malnutrition, while a score of ≥2 indicates a risk of malnutrition. After obtaining these screening data, we conduct a comprehensive nutrition assessment by re-interviewing the patient or their family*."

Inpatient Clinical Dietitian 3: "*The nutrition assessment data we collect include anthropometric, biochemical, clinical, and dietary intake data. Every patient admitted to the hospital undergoes a nutrition assessment.*"

Inpatient Clinical Dietitian 4: "*For the assessment, we measure the patient's weight and height to determine their nutritional status. Biochemical data are obtained from the patient's medical records, while nutrition-focused physical findings are assessed through direct observation and medical history. Additionally, dietary intake data are gathered by conducting dietary recalls with the patient and their family*."

The following presents the distribution of nutrition assessment findings derived from secondary data, detailing respondents' characteristics including age, nutritional status (anthropometric data), biochemical profiles, clinical or nutrition-focused physical findings, and dietary intake.

a. Age Characteristic

The patient population spanned ages 18 to 94. A detailed breakdown based on standard age categories is provided below:

Table 1. Patient Age

Age Category	Frequency	
	n	%
Young Adults (18 - 44 years old)	845	19,0%
Middle Adult (45 - 59 years old)	1.822	41,0%
Elderly (60 - 74 years old)	1.467	33,0%
Old Elderly (> 75 years old)	311	7,0%
Total	**4.445**	**100%**

The most dominant age groups spanned from late adulthood to older adults. The highest frequency was observed in middle-aged adults at 41%. Additionally, a significant proportion fell within the 60–74 age range, indicating that the study population skewed toward older age groups, with older adults accounting for 33% of the total sample.

b. Patient Nutritional Status

The following presents the distribution of patient nutritional status at Bengkalis Regional General Hospital, derived from 2025 secondary data. The corresponding classifications are summarized in the table below:

Table 2. Patient Age

Category	Frequency	
	n	%
Normal	2.567	57,8%
Overweight	841	18,9%
Underweight	572	12,8%
Obese	387	8,7%
unknown	78	1,7%
Total	**4.445**	**100%**

Nutrition status assessment was based on measurements of patients' weight, height, and Mid-Upper Arm Circumference (MUAC). The majority of the sample, comprising 2.567 individuals (57,8%), presented with a normal nutritional status. However, the dataset included 78 individuals (1,7%) whose nutritional status remained unknown, indicating that some clinical dietitians did not perform weight and height measurements for these patients.

c. Laboratory Values (Biochemistry)

The following presents the distribution of patient laboratory findings derived from 2025 secondary data at Bengkalis Regional General Hospital. The classifications of these biochemical values are summarized in the table below:

Table 3. Biochemical Value Assessment

Group	Specific Parameters	n	%
NORMAL	Safe Limits	3.067	69,0%
PROBLEMATIC	High/Elevated Blood Sugar	**373**	**8,4%**
	Low HB (Anemia)	81	1,8%
	High Urea & Creatinine	43	1,0%
	Low Albumin	32	0,7%
	Others (Uric Acid/Cholesterol)	849	19,1%
	Total	**4.445**	**100%**

Based on secondary data from 2025, clinical findings were documented through blood tests. The data revealed a wide variety of laboratory abnormalities, with normal values predominating in more than half of the study population, accounting for 3.067 cases (54,3%). Among the abnormal findings, elevated Random Blood Glucose (RBG) emerged as the most prevalent issue, with over 373 cases.

d. Clinical Physical Condition

The following is the distribution of patients' physical/clinical conditions based on secondary data from 2025 at Bengkalis Regional General Hospital. The grouping of clinical physical conditions can be seen in the table:

Table 4. Clinical Physical Condition

Category	n	%
Problematic	3.877	87,2%
Normal	568	12,8%
Total	**4.445**	**100%**

Based on secondary data from 2025, clinical findings were documented through physical and clinical examinations. The data revealed that a striking majority of the cases, totaling 3.887 (87,2%), presented with physical or clinical abnormalities. These findings were predominantly associated with clinical symptoms such as dyspnea (shortness of breath), edema, fatigue, epigastric pain, chest pain, and hypertension.

e. Food Intake

The following presents the distribution of patient dietary intake derived from 2025 secondary data at Bengkalis Regional General Hospital. Dietary intake was assessed using a 24-hour dietary recall prior to hospital admission. To evaluate the adequacy of dietary intake, the consumption was classified based on the percentage of the

Recommended Dietary Allowances (RDA) met by the patient, adapted from the Indonesian Ministry of Health standards (23). The corresponding classifications are summarized in the table below:

Table 5. Food Intake

Intake	n	%
Good	2874	64,6 %
less	1568	35,3 %
fast	3	0,1 %
Total	**4.445**	**100%**

Based on the 2025 secondary data, the findings revealed that the majority of patients maintained an adequate dietary intake, accounting for 2.874 cases (64,6%).

Description of Nutritional Diagnosis in the Standardized Nutritional Care Process in Inpatient Care at Bengkalis Regional Hospital

Researchers conducted interviews with four inpatient clinical dietitians regarding the question, "How is the nutrition diagnosis process implemented for patients?" The following response was provided:

Inpatient Clinical Dietitian 1: "*The determination of the nutrition diagnosis is already integrated into our nutrition care form. We utilize standardized nutrition diagnoses that are commonly applicable. In practice, we formulate them by analyzing the patient's specific Problem, Etiology, and Signs/Symptoms (PES)."*

Inpatient Clinical Dietitian 2: "*We evaluate the patient's primary problem, typically by consulting the physician's notes in the patient's medical records. Following that, during our ward rounds, we interview the patient to reassess their clinical condition. Only after completing these steps do we establish the nutrition diagnosis.*"

Inpatient Clinical Dietitian 3: "*We utilize the PES (Problem, Etiology, and Signs/Symptoms) statement method, which is derived directly from the patient's nutrition assessment data.*"

Inpatient Clinical Dietitian 4: "*We formulate the nutrition diagnosis based on standardized nutrition terminology and the PES principle. However, because the list of official nutrition diagnoses is highly extensive, we adapt by selecting the ones most frequently encountered in our clinical practice.*"

The first step in establishing a nutrition diagnosis involves constructing the diagnosis matrix. However, at this stage, clinical dietitians often encounter difficulties in utilizing this matrix, rendering the method rarely applied in clinical practice. The subsequent step prior to formulating the diagnosis is identifying the Problem, Etiology, and Signs/Symptoms (PES) components (Ministry of Health of the Republic of Indonesia, 2013).

Based on the interview findings presented above, we analyzed 2025 secondary data regarding the nutrition diagnoses established by the clinical dietitians. The distribution of these patient nutrition diagnoses is detailed below:

Table 6. Distribution of Patient Nutritional Diagnosis

Nutritional Diagnosis	n	%
NC-2.2 Changes in nutrition-related laboratory values	2.412	54,3%
NI-5.4 Decreased Nutritional Needs	1.352	30,4%
NI-5.1 Increased Nutritional Needs and **NI 5.2** Malnutrition	681	15,3%
Total	**4.445**	**100%**

The most prevalent nutrition diagnosis identified among the patients was altered nutrition-related laboratory values (NC-2.2). This diagnosis was established based on medical record entries indicating significant abnormalities in the patients' biochemical profiles.

Description of Nutritional Interventions in the Standardized Nutritional Care Process in Inpatient Care at Bengkalis Regional Hospital

Interviews with four inpatient clinical dietitians on the morning shift included the following question: "What does the nutrition intervention process involve, and what is the rationale for its implementation for patients?" The responses were as follows:

Inpatient Clinical Dietitian 1: "*Our nutrition interventions encompass determining the patient's meal modifications, nutrition prescriptions, dietary goals, and nutrition education. We tailor these interventions specifically to meet each patient's individual requirements.*"

Inpatient Clinical Dietitian 2: "*Interventions are formulated and delivered based on the patient's medical diagnosis and specific metabolic needs.*"

Inpatient Clinical Dietitian 3: "*We establish the patient's texture-modified diets and overall nutrition prescriptions, which are typically adjusted to their clinical status. For the educational component, we utilize informative leaflets*."

Inpatient Clinical Dietitian 4: "*The setting of dietary goals, nutrient requirement calculations, meal modifications, and nutrition prescriptions are carefully aligned with the patient's clinical condition and educational background*."

The intervention delivered consists of a nutrition prescription tailored specifically to the patient's medical condition. Additionally, the ward clinical dietitian establishes intervention goals, calculates energy and nutrient requirements, and determines appropriate meal modifications, diet types, and nutrition education. This comprehensive approach is designed to motivate patients to consume hospital-provided meals while encouraging them to be more cautious regarding food brought from outside the hospital.

Table 7. Distribution of Patient Food Forms

Food Forms	n	%
Regular Food	2.894	65,1%
Soft Food (SF)	1.111	25,0%
Liquid Food	312	7,0%
Filtered Food	128	2,9%
Total	**4.445**	**100,0%**

The data revealed that the most prevalent dietary texture prescribed to the patients was a regular diet, accounting for 2.894 cases (65,1%).

Table 8. Distribution of Patient Diet Interventions

Intervention Category	n	%
DM Diet (Diabetes Mellitus)	373	8,4%
Heart Diet	82	1,8%
Gastric Diet	208	4,7%
High-calorie, high-protein diet	142	3,2%
Renal Diet (RPRKRG)	43	1,0%
Extra Egg White	32	0,7%
Other Diets (Combination)	3.565	80,2%
Total	**4.445**	**100,0%**

The findings indicated that the most frequently prescribed dietary regimen was a combination diet, accounting for 3.565 cases (80,2%).

Table 9. Distribution of Nutrition Education Materials

Educational Materials	n	%
Balanced Nutritional Diet	2.566	57,7%
Diabetes Mellitus Diet	373	8,4%
Low Salt Diet (RG)	286	6,4%
Gastric/Digestive Tract Diet	208	4,7%
High-calorie, high-protein diet	142	3,2%
Low Protein Diet (Kidney)	43	1,0%
Other Educational Materials (Combination)	827	18,6%
Total	**4.445**	**100,0%**

The findings indicated that the most prevalent nutrition education intervention provided to the patients was on balanced nutrition dietary patterns, accounting for 2.566 cases (57,7%), and delivered utilizing informative leaflets.

Overview of Monitoring and Evaluation of the Standardized Nutrition Care Process in Inpatient Care at Bengkalis Regional Hospital.

The implementation of nutrition monitoring and evaluation conducted by clinical dietitians involves the assessment of anthropometric data, specifically comparing the patients' initial and discharge weights. Additionally, they review biochemical profiles from medical records when available, along with nutrition-focused physical findings. Dietary intake is monitored by evaluating plate waste utilizing the visual Comstock scale. Furthermore, during routine ward rounds, dietitians interview patients to assess diet acceptability, tolerance, and any ongoing clinical complaints.

Interviews with nutritionists revealed the following findings:
"*Monitoring and evaluation for inpatients typically involves assessing patient progress based on food intake, food waste, and patient medical records*."

The following is a breakdown of monitoring and evaluation based on secondary data from 2025:

a. Monitoring
   The following are nutritional monitoring indicators:

Table 10. Patient Monitoring

Monitoring Indicators	n	%
Anthropometrics	2.566	57,7%
Food Intake	1.124	25,3%

Biochemical Data	531	11,9%
Physical/Clinical	224	5,1%
Total	**4.445**	**100,0%**

The findings indicated that the most prevalent nutrition monitoring indicator utilized for patients was anthropometry, accounting for 2.566 cases (57,7%). This high frequency of anthropometric monitoring is critical for the early detection and prevention of hospital-associated malnutrition.

b. Evaluation
The following is a nutritional evaluation after nutritional intervention:

Table 11. Patient Monitoring

Evaluation Status	n	%
Objective Achieved	3.102	69,8%
Partially Achieved	987	22,2%
Not Yet Achieved	356	8,0%
Total	**4.445**	**100,0%**

The findings indicated that the expected goals of the nutrition evaluation were successfully met in 3.102 cases (69,8%). This high achievement rate demonstrates that the standardized nutrition care process was effectively and optimally implemented.

4. DISCUSSION

Implementation of Nutritional Assessment in the Standardized Nutrition Care Process

Based on the study conducted at Bengkalis Regional General Hospital, the nutrition assessment process for patients comprises five core components. First, the anthropometric assessment encompasses measurements of the patient's weight, height, and mid-upper arm circumference (MUAC). Second, the biochemical assessment incorporates laboratory values and relevant diagnostic findings. Third, the nutrition-focused physical findings include the evaluation of vital signs, such as blood pressure, body temperature, respiratory rate, and pulse rate.

Fourth, the food and nutrition-related history assessment encompasses the patient's dietary history and consumption patterns. At this stage, the clinical dietitian plays a pivotal role in data collection, including identifying food allergies, analyzing dietary intake, evaluating meal regularity, and assessing usual food consumption. Fifth, the client history (personal or ecological history) assessment encompasses the patient's occupation, socioeconomic status, and educational level.

The findings of this study align with the guidelines issued by the Ministry of Health of the Republic of Indonesia (2013) in the Hospital Nutrition Care Guidelines (Pedoman Pelayanan Gizi Rumah Sakit/PGRS), which classify nutrition assessment into five standardized categories: food/nutrition-related history, biochemical data, anthropometric measurements, nutrition-focused physical findings, and client history. These findings are also corroborated by previous research indicating that the nutrition care process initiates with a nutrition screening conducted by nurses in the Emergency Department (ED), followed by a comprehensive assessment by a clinical dietitian in the inpatient ward. This secondary assessment integrates nutrition screening, anthropometric measurements, nutrition-focused physical examinations, and dietary

history. Furthermore, a patient's client history, including past medical history, plays a critical role in determining nutritional status and evaluating the risk of specific non-communicable diseases, such as hypertension (9).

The study findings demonstrated that the majority of patients fell within the middle-aged to older adult cohorts, a demographic at elevated risk for non-communicable diseases (NCDs) and nutrition disorders. This observation is consistent with existing literature indicating that older populations present a higher prevalence of malnutrition, which is directly associated with increased morbidity, mortality, and a diminished quality of life. Furthermore, malnutrition among older adults remains frequently underdiagnosed despite established diagnostic criteria (10).

The distribution of nutrition status revealed that while most patients were within the normal range, a significant proportion was classified as overweight or obese. This trend exemplifies the double burden of malnutrition phenomenon, where undernutrition and overnutrition coexist within the same study population. This dual reality poses a critical challenge to healthcare systems, as both extremes concurrently escalate the risk of clinical complications, particularly in patients presenting with chronic comorbidities.

The high proportion of patients presenting with impaired clinical physical conditions (87.2%) indicates that the majority of the population requires specialized attention within nutrition care. Across critical illness, severe infection, burns, cancer, liver disease, and mitochondrial disorders, disease-driven inflammation and stress responses consistently shift metabolism toward hypermetabolism and protein breakdown, which worsens nutritional status if intake and monitoring do not keep pace (11, 12). Crucially, the earliest phase of critical illness is not always hypermetabolic, but it is still strongly catabolic, meaning that both underfeeding and overfeeding can worsen patient outcomes (13, 14).

Furthermore, abnormal findings in biochemical parameters, including hyperglycemia, anemia, and impaired renal function, serve as critical indicators for establishing a precise nutrition diagnosis. Imbalances in these laboratory parameters are well-documented to correlate with poorer clinical outcomes, such as an increased rate of complications, prolonged length of stay (LOS), and a higher mortality risk (15). Consequently, the systematic integration of biochemical data into the nutrition care process is highly crucial.

Implementation of Nutritional Diagnosis in the Standardized Nutrition Care Process

Based on the results of research at Bengkalis General Hospital, the nutritional diagnosis process carried out on patients consists of 3 processes: first, looking at the nutritional problem (Problem). Second, the cause of the nutritional problem (Etiology). Third, recognizing the symptoms/signs (Sign & Symptom). This diagnosis is also carried out to see the patient's food intake, physical diagnosis, and behavior/environment. The results of the study are in line with Rustika et al (2018), that the implementation of the nutritional diagnosis process is seen from the patient's nutritional assessment data that has been analyzed by a dietitian, and then determines the problem or symptoms in the patient (16). According to the PGRS theory (2013) used by researchers, nutritional diagnoses are grouped into 3 domains: the intake domain, the clinical domain, the

environmental behavior domain. The method of determining this diagnosis is done using the PES method (Problem, Etiology, Sign & Symptom).
The nutrition diagnosis process is interconnected with nutrition assessment data, as these data can confirm, determine a patient's nutrition diagnosis, and identify the patient. This diagnostic process is essential for confirming the patient's condition, implementing a new nutrition prescription, and identifying the patient (17).

Nutrition diagnoses in this study were dominated by changes in laboratory values and dietary issues, indicating that the Assessment, Diagnosis, Intervention, Monitoring, and Evaluation (ADIME) approach was systematically applied. However, diagnostic effectiveness is highly dependent on the quality of the available data. Inconsistencies in recording and variations in writing can reduce the validity of the analysis and impact the appropriateness of interventions provided to patients. For instance, incomplete documentation of patient food intake or non-standardized phrasing in clinical charts directly limits the precision of nutrition care. These data inconsistencies are primarily driven by factors such as high clinician workloads, varying levels of training in standard nutrition terminology among healthcare staff, and the lack of integrated electronic medical record systems.

In line with research by Artawa (2019), the nutrition diagnosis stage in NCP (Nutrition Care Process) is key to clinical assessment. In this study, nutrition problems are grouped by domains, including inadequate oral intake, altered nutrition-related laboratory values, underweight, and inappropriate food choices. Problem-solving is carried out through sequential and interrelated steps. In this case, nutrition diagnosis is a critical stage that acts as a link between nutrition assessment and nutrition intervention (18).

Implementation of Nutritional Interventions in the Standardized Nutrition Care Process

Based on research conducted at Bengkalis Regional General Hospital, the nutrition intervention process for patients consists of four components: food and/or nutrient delivery, nutrition counseling, nutrition education, and coordination of nutrition care. In the intervention planning stage, activities include goal setting, calculating nutrient requirements, and developing a nutrition prescription that includes diet type, dietary texture, route of administration, and meal frequency. Meanwhile, the intervention implementation stage is carried out through the delivery of nutrition care to patients, namely food and/or nutrient delivery, counseling, education, and coordination with other healthcare professionals (Ministry of Health of the Republic of Indonesia, 2013).

Food or nutrient delivery is generally provided as three main meals and two snacks daily, tailored to the patient's nutritional needs and clinical condition. Nutrition counseling is typically administered once during the hospital stay, particularly before discharge, although it may be provided more frequently in certain cases as clinically indicated. For instance, incomplete documentation of patient food intake or non-standardized phrasing in clinical charts directly limits the precision of nutrition care. These data inconsistencies are primarily driven by factors such as high clinician workloads, varying levels of training in standard nutrition terminology among healthcare staff, and the lack of integrated electronic medical record systems.

Nutrition interventions aim to increase intake, prevent ongoing malnutrition, alleviate symptoms, and improve the patient's nutrition status and quality of life in the long term. Dietary goals are tailored to the nutrition diagnosis resulting from screening and

assessment (19). This is done to meet the patient's nutritional needs and support disease therapy through appropriate dietary management. The nutrition prescription, including the type and dietary texture (e.g., soft or regular), is tailored to the patient's medical diagnosis. In implementation, clinical dietitians use various media such as food models, leaflets, flip charts, and counseling and interview methods to improve patient understanding. If the intervention is not optimal, for example, due to dietary non-compliance, a reassessment is carried out, including re-assessment and re-intervention planning (4).

For example, in post-operative patients experiencing persistent nausea, vomiting, and pain, nutrition intervention principles focus on improving gastrointestinal function, meeting energy requirements, and providing a high protein intake of 1.5 g/kg of body weight to prevent tissue damage during chemotherapy. Medium-chain triglyceride (MCT) fats are chosen because they are easily digested and beneficial in enhancing metabolism, while other macronutrients and micronutrients are tailored to the clinical condition (20).

Nutrition interventions for cancer patients are multimodal and individualized, emphasizing increased nutrient intake, reduced inflammation, and enhanced metabolism. A minimum of 1.0–1.5 g/kg of body weight per day of protein is recommended to support healing and prevent tissue damage. Balanced carbohydrates and fats are provided with glucose restriction, while a ketogenic diet or mannose supplementation can help suppress tumor growth (21).

Patients with gastritis are advised to avoid spicy foods, patients with diabetes are prescribed a low-glycemic or controlled-carbohydrate diet, and hypertensive patients are prescribed a low-sodium diet (22). However, in practice, patient or family non-compliance is still encountered, such as bringing in food from outside the hospital that does not comply with the prescribed nutrition intervention. This situation indicates that patient compliance is a critical factor in the success of nutrition interventions.

Furthermore, several barriers to implementing nutrition interventions exist, including insufficient food intake due to decreased appetite, inadequate patient knowledge regarding the prescribed diet, and poor patient cooperation in participating in nutrition counseling. Another obstacle is limited anthropometric data, such as the unavailability of weight and height data, which can compromise the accurate calculation of nutrient requirements. These findings align with recent research showing that time constraints, patient compliance, and the quality of documentation are key challenges in implementing the Nutrition Care Process (NCP) in hospitals (23).

Although comprehensive nutrition interventions have been implemented, their effectiveness on several clinical indicators still shows variable results. Recent systematic reviews have shown that nutrition interventions can improve patient diets, but their impact on indicators such as body mass index, blood pressure, and lipid profiles remains inconsistent, depending on the method and duration of the intervention (23).
Conceptually, the results of this study align with the Hospital Nutrition Care Guidelines, which state that nutrition interventions consist of two main stages: planning and implementation (Ministry of Health of the Republic of Indonesia, 2013). Furthermore, previous research has shown that nutrition intervention practices by clinical dietitians

generally include intervention planning, education, and/or nutrition counseling tailored to the patient's clinical condition, such as in cases of hypertension (23).

Implementation of Nutrition Monitoring and Evaluation in the Standardized Nutrition Care Process

Based on research conducted at Bengkalis Regional General Hospital, the process of nutrition monitoring and evaluation for patients is carried out through several main stages. First, monitoring the progress of the patient's nutrition status is conducted by assessing food intake and consumption, observing plate waste, conducting direct interviews with patients, and reviewing medical records. Second, measuring outcomes is performed through the collection of laboratory data, dietary intake, and body weight prior to discharge. Third, evaluation of outcomes is conducted by comparing these current findings against the baseline assessment data or predetermined nutritional goals to determine whether the nutrition intervention has successfully resolved or improved the nutrition diagnosis. The fourth stage comprises documentation of the nutrition monitoring and evaluation results (17).

Daily monitoring of food intake and the patient's physical or clinical condition is performed, while laboratory tests are conducted periodically as clinically indicated. This monitoring activity aims to assess the effectiveness of the nutrition intervention. In practice, clinical dietitians assess patient progress through a combination of dietary intake data, medical records, and laboratory results. For example, in patients with diabetes, the success of the nutrition intervention can be seen from a decrease in blood glucose levels (17).

The findings of this study align with a study by Rustika et al. (2018), which stated that nutrition monitoring and evaluation were optimally implemented by dietitians. Dietitians routinely monitor patient intake daily by evaluating plate waste using the Comstock method and conduct daily visits to assess dietary acceptance and identify patient complaints (16).

The monitoring conducted in this study focused on anthropometric measurements and dietary intake, which are important indicators in assessing the success of nutrition interventions. Regular monitoring of body weight and food consumption allows for the early detection of nutrition status decline during treatment, enabling interventions to be adjusted promptly.

The evaluation results showed that approximately 69.8% of the interventions achieved the expected targets, reflecting the satisfactory effectiveness of nutrition services. However, some patients still did not achieve optimal targets, which may be influenced by various factors such as baseline clinical conditions, length of stay (LOS), and dietary adherence. Studies have shown that patients who are malnourished from the outset are at a higher risk of experiencing clinical deterioration during hospitalization (15).

Furthermore, based on the Hospital Nutrition Care Guidelines (PGRS, 2013), the nutrition monitoring and evaluation process includes three main steps: monitoring progress, measuring outcomes, and evaluating outcomes. The field findings indicate that the implemented practices are in accordance with these guidelines.

Data Quality

In terms of data quality, several limitations were identified, including documentation inconsistencies and a lack of standardized data entry. This can lead to difficulties in statistical processing and data analysis. Crucially, high-quality data are essential for

supporting evidence-based decision-making and improving the quality of healthcare services. Therefore, improvements are needed through the standardization of documentation systems and the enhancement of the competency of healthcare professionals in data management.

5. CONCLUSION

Based on the results of secondary data analysis of 4,445 patients, it can be concluded that the majority of patients are in the middle aged to elderly group with a high risk of non-communicable diseases and nutrition status issues. Although most patients fall into the normal category, a double burden of malnutrition remains evident characterized by overweight, obesity, and underweight which has the potential to worsen patients' clinical conditions. Nutrition care has been implemented comprehensively through the ADIME approach with a satisfactory level of intervention success. However, as a primary limitation of this study, the reliance on secondary data revealed inherent barriers in within the hospital's NCP implementation, such as documentation inconsistencies and a lack of standardization, which can affect the accuracy of analysis and decision-making. Therefore, it is recommended to implement a standardized, digital-based documentation system to improve data quality, strengthen nutrition screening and diagnosis using international standards (particularly in high-risk groups), and optimize the role of multidisciplinary teams in nutrition interventions to improve patient clinical outcomes. In addition, it is necessary to develop theoretical frameworks related to the integration of clinical and nutrition data within health information systems, as well as to conduct further research focusing on the effectiveness of long-term nutrition interventions, dietary adherence, and the relationship between data quality and the success of hospital nutrition care.

CONFLICT OF INTEREST

The authors declare that the data and information utilized in this research were obtained and processed objectively, free from any financial or non-financial conflicts of interest with any party. Consequently, the findings presented in this manuscript are intended solely for scientific purposes and the advancement of knowledge

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