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Application of the Standardized Nutrition Care Process in a Hospitalized Patient with Coronary Heart Disease: A Case Study and Nursing Implications

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ABSTRACT
Background: Coronary heart disease (CHD) requires multidisciplinary management that integrates control of cardiometabolic risk factors with assessment of nutritional status and food intake during hospitalization. Nutritional risk may occur across body mass index categories, including obesity.
Objective: To describe the application of the standardized Nutrition Care Process (NCP) in a hospitalized patient with CHD and to examine its implications for nutritional monitoring in nursing practice.
Methods: A descriptive observational case study was conducted in a 60-year-old man admitted with unstable angina pectoris, with non-ST-elevation myocardial infarction considered in the differential diagnosis, at Undata Regional General Hospital, Palu, Indonesia, from 22 to 28 March 2025. Data were collected using the Malnutrition Screening Tool (MST), anthropometry, 24-hour dietary recall, a food frequency questionnaire, physical and clinical observation, interviews, and medical-record review. Data were analyzed descriptively by comparing intake with individualized requirements and monitoring clinical changes over seven days.
Results: The patient weighed 85.9 kg, was 165.3 cm tall, and had a body mass index of 31.55 kg/m^2, consistent with class I obesity. An MST score of 3 indicated a positive nutritional-risk screening result, warranting comprehensive nutrition assessment to determine the presence and severity of nutritional impairment. Initial energy, protein, fat, and carbohydrate intakes were 36.84%, 48.13%, 45.23%, and 35.10% of estimated requirements, respectively. The intervention comprised a low-sodium, energy-restricted cardiac diet and nutrition education for the patient and family. Nutrient adequacy varied over the seven-day observation period. On day 7, energy, protein, fat, and carbohydrate adequacy were 53%, 57%, 56%, and 51%, respectively, coinciding with documented recurrence of clinical symptoms. This temporal association did not establish a causal relationship.
Conclusion: This case demonstrates that obesity does not exclude the possibility of nutritional risk or inadequate intake during acute CHD hospitalization. The NCP provides a structured framework for integrating anthropometric, clinical, biochemical, and dietary information; however, adequacy of nutrition during acute illness cannot be inferred from diet prescription and education alone. This case highlights the importance of repeated dietary-intake assessment and timely nurse–dietitian communication in identifying nutritional deterioration and informing individualized care adjustments during acute coronary hospitalization.

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INTRODUCTION

Cardiovascular disease remains a major cause of morbidity and mortality worldwide. In Indonesia, the 2023 Indonesian Health Survey reported a physician-diagnosed heart disease prevalence of 0.85% nationally and 0.65% in Central Sulawesi (Kementerian Kesehatan Republik Indonesia, 2024). Contemporary cardiovascular guidelines emphasize that management of coronary disease extends beyond treatment of the acute event and includes structured secondary prevention, lifestyle modification, dietary management, and cardiac rehabilitation (Byrne et al., 2023; Virani et al., 2023; Visseren et al., 2021).

Coronary heart disease (CHD) is closely related to atherosclerotic disease and may present as an acute coronary syndrome (ACS). Dietary quality is an important component of secondary prevention. Current guidance supports dietary patterns rich in vegetables, fruits, legumes, whole grains, nuts, and lean protein while limiting sodium, saturated and trans fats, refined carbohydrates, and highly processed foods (Lichtenstein et al., 2021; Virani et al., 2023). Long-term randomized evidence also indicates that structured dietary patterns can reduce recurrent cardiovascular events in patients with established coronary heart disease (Delgado-Lista et al., 2022). Nutrition interventions delivered within cardiac rehabilitation may improve dietary behavior and cardiometabolic parameters, although intervention content, adherence, and durability of behavior change vary substantially across studies (Kocanda et al., 2023; Kotewitsch et al., 2025; Souza et al., 2026).

Nutritional assessment in patients with coronary heart disease is particularly challenging because excess adiposity may coexist with inadequate dietary intake and disease-related nutritional vulnerability. Although obesity is conventionally recognized as a cardiometabolic risk factor, an elevated body mass index does not exclude concurrent nutritional impairment. Importantly, this coexistence should be distinguished from the cardiovascular "obesity paradox," which primarily concerns the observed association between body mass index and clinical outcomes in certain patient populations. In ACS cohorts, nutritional impairment has been observed in patients with BMI ≥25 kg/m^2 and has been associated with adverse outcomes (Kang et al., 2022). A meta-analysis of 30 studies involving more than 37,000 patients with ACS found that malnutrition identified by commonly used nutritional indices was associated with substantially higher mortality (Lai et al., 2023). Obesity may also mask poor diet quality, inadequate intake, loss of lean tissue, or disease-related metabolic stress, underscoring the importance of assessing nutrition beyond body size alone (Cristancho et al., 2024).

During acute illness and hospitalization, the ability to meet nutritional requirements can change rapidly because of symptoms, reduced appetite, fatigue, treatment-related factors, and interruptions to normal eating. Hospital nutrition guidelines therefore recommend systematic screening, assessment, individualized nutrition care, and continued monitoring rather than relying on a single anthropometric measure or one-time dietary assessment (Thibault et al., 2021; Wunderle et al., 2023). A 2024 systematic review and meta-analysis found that validated screening instruments, including the Malnutrition Screening Tool (MST), can identify hospitalized adults who require further nutrition assessment, although diagnostic performance differs among tools and reference standards (Cortés-Aguilar et al., 2024).

Nutrition monitoring is inherently interdisciplinary. Implementation studies show that structured interdisciplinary nutrition-care models can improve meal-related care processes, nutrition information, assistance with eating, monitoring, and care planning for patients at nutritional risk (Bell et al., 2021). Nurses are particularly well positioned to observe food intake, symptoms that interfere with eating, and day-to-day changes in clinical condition. Nurse-driven mealtime assistance has improved dietary intake among hospitalized patients at risk of malnutrition (Zhang et al., 2024), while trained nurses can perform systematic nutritional-risk screening when appropriate protocols and escalation pathways are in place (Canta et al., 2026). Nevertheless, disagreement between nursing and dietetic screening can lead to missed risk and delayed dietetic involvement, indicating that screening must be embedded in a clear referral system (Deschepper et al., 2023).

Within hospital nutrition services, the standardized Nutrition Care Process (NCP; Proses Asuhan Gizi Terstandar/PAGT) provides a structured sequence of nutrition assessment, diagnosis, intervention, monitoring, and evaluation. Although contemporary cardiovascular and clinical nutrition guidelines emphasize nutritional assessment and secondary prevention, the day-to-day variability of oral intake during acute coronary hospitalization remains clinically important to characterize. This case report provides a detailed description of seven consecutive days of nutrient adequacy in a patient with coronary heart disease and class I obesity, with particular attention to the temporal relationship between nutritional intake and clinical symptoms. The findings are used to identify practical opportunities for integrating bedside nursing observations with dietitian-led nutritional reassessment, without making causal claims regarding intervention effectiveness. The study therefore aimed to describe application of the NCP in a hospitalized patient with CHD, including nutritional screening, assessment, diagnosis, intervention, and daily monitoring, and to formulate implications for nursing nutritional surveillance.

METHODS

Study Design and Setting

A descriptive, observational single-patient case study was conducted at the Melati Pavilion, Undata Regional General Hospital, Palu, Central Sulawesi, Indonesia, between March 22 and 28, 2025. The study documented the implementation of the standardized Nutrition Care Process and changes in dietary intake and clinical symptoms over seven consecutive observation days. The design was descriptive and was not intended to establish intervention effectiveness or population-level generalizability.

Patient

The patient was a 60-year-old man with a medical diagnosis of unstable angina pectoris, with non-ST-elevation myocardial infarction (NSTEMI) considered in the differential diagnosis. He was selected purposively on the recommendation of the hospital nutrition team because he had CHD, remained hospitalized throughout the observation period, was fully conscious and able to participate in interviews, and agreed to take part in the assessment. The case was clinically relevant because class I obesity coexisted with dyslipidemia, mildly elevated creatinine, and markedly reduced oral intake during episodes of dyspnea and chest pain.

Data Collection and Nutritional Screening

Data were obtained through patient and family interviews, direct observation, anthropometric measurements, dietary assessment, and review of the medical record. Nutritional risk was screened using the Malnutrition Screening Tool (MST). An MST score ≥2 was interpreted as indicating the need for further nutrition assessment, consistent with the use of validated screening approaches in hospitalized adults (Cortés-Aguilar et al., 2024). Body weight and height were measured, and BMI was calculated as body weight (kg) divided by height squared (m^2). Dietary intake was assessed using a 24-hour dietary recall, while pre-illness eating patterns were explored using a food frequency questionnaire (FFQ). Clinical and biochemical data were obtained from direct observations and available laboratory results.

Nutrition Care Process

The standardized NCP comprised four linked stages: (1) nutrition screening and assessment; (2) nutrition diagnosis; (3) nutrition intervention; and (4) monitoring and evaluation. This sequential approach is consistent with contemporary hospital nutrition recommendations that emphasize early recognition of nutritional risk, individualized targets, and reassessment when intake or clinical status changes (Thibault et al., 2021; Wunderle et al., 2023).

The nutrition intervention consisted of an oral low-sodium, energy-restricted cardiac diet provided as three main meals and two snacks per day. Individualized nutritional targets were established by the hospital nutrition service. The prescribed daily targets were 1,900.28 kcal for energy, 71.26 g for protein, 42.22 g for fat, and 308.79 g for carbohydrate. The predictive equation, body-weight reference, activity or stress adjustments, and macronutrient allocation used to derive these targets should be explicitly reported to ensure methodological reproducibility.

Nutrition education was delivered to the patient and family through counseling, questions and answers, and a leaflet. Education covered the principles of a heart-healthy diet, restriction of high-sodium and high-fat foods, food selection, meal distribution, and foods to prioritize or limit. Evidence from cardiac rehabilitation suggests that education and individualized counseling can improve selected aspects of dietary behavior, although effects are not uniform across all nutrients or outcomes (Kocanda et al., 2023; Sinclair et al., 2024; Souza et al., 2026).

Monitoring and Data Analysis

Monitoring was conducted daily for seven consecutive days. Energy, protein, fat, and carbohydrate intake and changes in physical and clinical condition were recorded. Nutrient adequacy was calculated as the percentage of observed intake relative to the individualized requirement. Data were analyzed descriptively; no inferential analyses were performed because the study involved a single patient. Day-to-day changes were used to characterize the clinical course and were not interpreted as evidence of causality or intervention effectiveness. Routine food-intake tracking has been shown to support escalation of nutrition care in hospital systems and may be particularly useful when intake changes dynamically during admission (Ellick et al., 2025).

Data Credibility and Ethical Considerations

Data credibility was strengthened through triangulation of information obtained from patient and family interviews, direct clinical observations, anthropometric measurements, dietary intake assessments, and medical record reviews. All stages of nutritional assessment and interpretation were conducted under the supervision of a qualified nutrition professional to ensure that the standardized Nutrition Care Process (NCP), encompassing nutrition assessment, diagnosis, intervention, monitoring, and evaluation, was implemented systematically and appropriately in accordance with the patient's clinical condition.

The study was conducted in accordance with ethical principles emphasizing respect for patient autonomy, privacy, confidentiality, and well-being. Before data collection, the patient received a clear explanation of the study objectives and procedures and voluntarily provided written informed consent by signing the consent form. Patient confidentiality was maintained by excluding personally identifiable information from the research documentation and scientific publication.

Ethical approval was obtained from the Health Research Ethics Committee of Poltekkes Kemenkes Palu (Approval No. 000969/KEPK POLTEKKES KEMENKES PALU/2025). The electronic ethics approval process was completed on March 20, 2025, before data collection was conducted from March 22 to 28, 2025.

RESULTS

Patient Characteristics and Nutritional Screening

The patient was a 60-year-old man with unstable angina pectoris and NSTEMI considered in the differential diagnosis. He had a history of heart disease since 2007 and a previous myocardial infarction in September 2024. Nutritional screening yielded an MST score of 3, indicating a positive screening result and the need for comprehensive nutritional assessment. The patient had a BMI of 31.55 kg/m^2, indicating class I obesity according to the classification applied in this study. Despite elevated body weight, baseline dietary assessment demonstrated substantial deficits in energy and macronutrient intake relative to the prescribed nutritional targets. Importantly, this risk was identified despite the absence of underweight, reinforcing that excess body weight does not exclude nutritional vulnerability during acute illness (Cristancho et al., 2024; Lai et al., 2023).

Anthropometric, Clinical, and Biochemical Status

Body weight was 85.9 kg and height was 165.3 cm, resulting in a BMI of 31.55 kg/m^2, classified as class I obesity. At the initial assessment, the patient reported dyspnea, chest pain, fatigue, and sleep disturbance. Blood pressure was 140/85 mmHg, pulse rate 58 beats/min,

respiratory rate 22 breaths/min, temperature 36°C, and oxygen saturation 98%. Laboratory results included HDL cholesterol 34 mg/dL, LDL cholesterol 119 mg/dL, creatinine 1.3 mg/dL, and serum sodium 132 mmol/L. Contemporary ACS and chronic coronary disease guidelines support intensive risk-factor control after an acute coronary event; biochemical targets should therefore be interpreted within the full cardiovascular risk profile (Byrne et al., 2023; Virani et al., 2023).

Table 1. Anthropometric, Clinical, and Biochemical Status

Parameter	Result	Reference/clinical context	interpretation
Body weight	85.9 kg	—	—
Height	165.3 cm	—	—
BMI	31.55 kg/m²	Adult BMI classification	Class I obesity
Consciousness	Compos mentis	—	Alert
Dyspnea	Present	—	Clinical symptom
Chest pain	Present	—	Clinical symptom
Sleep disturbance	Present	—	Clinical symptom
Blood pressure	140/85 mmHg	Clinical interpretation required	Elevated
Pulse	58 beats/min	60–100 beats/min	Slightly low
Respiratory rate	22 breaths/min	12–20 breaths/min	Elevated
Temperature	36°C	36–37°C	Within reference range
SpO_2	98%	95–100%	Within reference range
HDL cholesterol	34 mg/dL	>40 mg/dL in men	Low
LDL cholesterol	119 mg/dL	Risk-dependent secondary-prevention target	Above optimal secondary-prevention target
Creatinine	1.3 mg/dL	Laboratory-specific reference	Requires clinical interpretation
Sodium	132 mmol/L	136–145 mmol/L	Low

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Pre-Illness Dietary Pattern

Before the acute illness, the patient reported relatively large portions, frequent consumption of high-sodium foods such as salted fish and salted eel, and frequent fried foods, with limited vegetable and fruit intake. This pattern is relevant to long-term secondary prevention. Higher frequency of adding salt to foods has been associated with greater cardiovascular risk (Ma et al., 2022), while cardiovascular dietary guidance emphasizes minimizing sodium and processed foods and increasing nutrient-dense plant foods (Lichtenstein et al., 2021; Virani et al., 2023).

Table 2. Pre-Illness Dietary Pattern

Dietary component	Description
Portion size	Relatively large
High-sodium foods	Salted fish and salted eel
High-fat foods	Fried foods
Vegetables	Limited
Fruit	Limited
Overall pattern	Tended to be high in sodium and fat and low in vegetables and fruit

Initial Dietary Intake

The 24-hour dietary recall showed an energy intake of 700.1 kcal, protein intake of 34.3 g, fat intake of 19.1 g, and carbohydrate intake of 108.4 g. All components were substantially below the individualized requirements used by the nutrition service, providing the principal basis for the diagnosis of inadequate oral intake.

Table 3. Initial Dietary Intake

Nutrient	Observed intake	Individual requirement	Adequacy
Energy	700.1 kcal	1,900.28 kcal	36.84%
Protein	34.3 g	71.26 g	48.13%
Fat	19.1 g	42.22 g	45.23%
Carbohydrate	108.4 g	308.79 g	35.10%

Nutrition Diagnoses

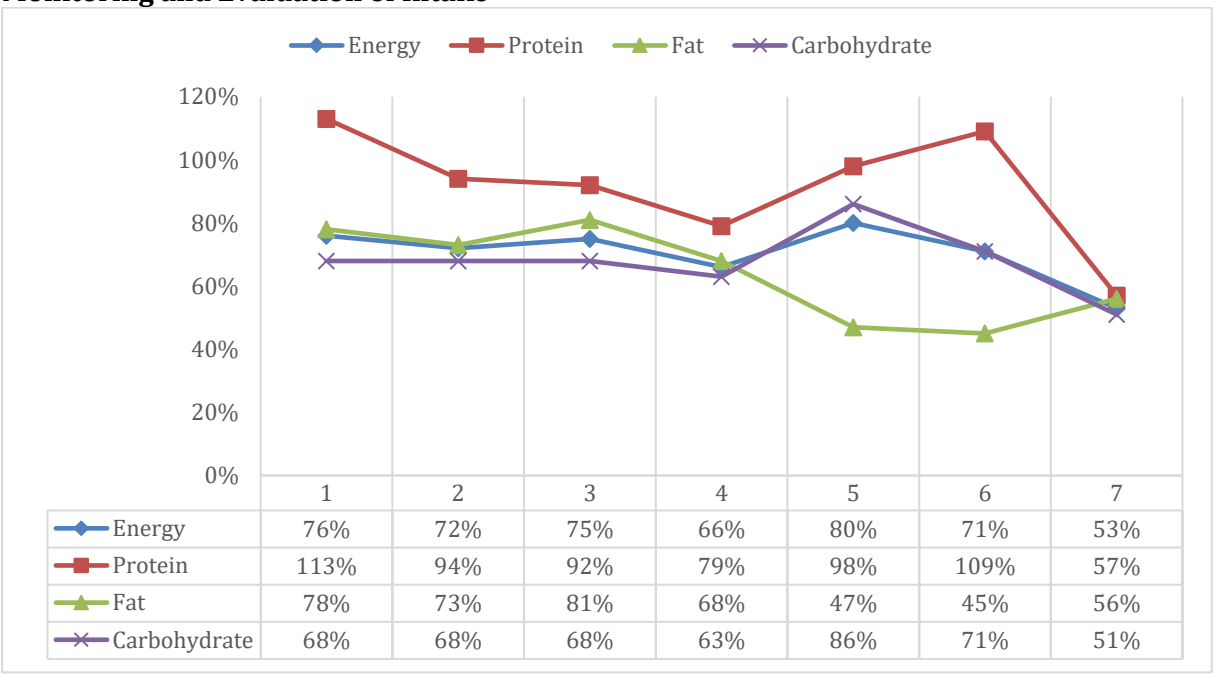
The primary nutrition diagnosis was inadequate oral intake (NI-2.1), related to reduced oral food consumption in the context of acute illness and concurrent clinical symptoms, as evidenced by a 24-hour dietary intake providing 36.84% of estimated energy requirements, 48.13% of protein requirements, 45.23% of fat requirements, and 35.10% of carbohydrate requirements. Additional diagnoses recorded in the NCP were NC-2.2, altered nutrition-related laboratory values, based on serum sodium of 132 mmol/L and creatinine of 1.3 mg/dL when interpreted with the medical diagnosis, and NC-3.3.4, class I obesity, related to a history of large portions and energy-dense/high-fat food consumption and evidenced by BMI 31.55 kg/m^2.

Nutrition Intervention

The patient received an oral low-sodium, energy-restricted cardiac diet consisting of three main meals and two snacks. Planning targets were 1,900.28 kcal energy, 71.26 g protein, 42.22 g fat, and 308.79 g carbohydrate. The patient and family also received counseling and written education on heart-healthy food selection, sodium and fat reduction, meal distribution, and foods to prioritize or limit.

The rationale for sodium reduction is supported by both cardiovascular guidelines and experimental evidence. Sodium reduction lowers blood pressure in a dose-responsive manner, with larger effects among people with higher baseline blood pressure (Filippini et al., 2021). In a large prospective cohort, lower frequency of adding salt to food was associated with lower risk of cardiovascular disease (Ma et al., 2022). Nonetheless, sodium restriction must remain clinically individualized, especially when biochemical abnormalities, comorbidities, and treatment regimens are present. Feasibility trials also show that dietary counseling can reduce discretionary salt use and improve some blood-pressure outcomes, although sustained changes in urinary sodium are not always achieved (Smyth et al., 2023).

Monitoring and Evaluation of Intake



	1	2	3	4	5	6	7
Energy	76%	72%	75%	66%	80%	71%	53%
Protein	113%	94%	92%	79%	98%	109%	57%
Fat	78%	73%	81%	68%	47%	45%	56%
Carbohydrate	68%	68%	68%	63%	86%	71%	51%

Daily Nutrient Intake Adequacy Over Seven Days (% of Estimated Requirements)

Daily nutrient adequacy demonstrated considerable variability throughout the observation period. Energy adequacy ranged from 53% to 80%, whereas protein adequacy ranged from 57% to 113% of the individualized targets. On the seventh day, energy and protein adequacy declined to 53% and 57%, respectively, coinciding with the documented recurrence of clinical symptoms. These findings demonstrate the value of serial dietary monitoring in identifying changes that may be overlooked by a single assessment. On day 7, adequacy fell to 53% for energy, 57% for protein, 56% for fat, and 51% for carbohydrate. This decline occurred at the same time as recurrence of clinical complaints documented during monitoring. The temporal concurrence cannot establish causation but demonstrates why repeated intake assessment is clinically informative.

DISCUSSION

Obesity Does Not Exclude Nutritional Risk Of Inadequate Intake

The principal finding of this case was the coexistence of class I obesity, a positive nutritional-risk screening result, and substantial inadequacy of oral intake during acute coronary hospitalization. Although BMI provides an indicator of relative body size, it does not adequately characterize dietary intake, recent weight changes, muscle mass, or functional status. The present observations therefore reinforce the importance of multidimensional nutritional assessment in hospitalized patients with obesity. Nevertheless, neither malnutrition nor muscle depletion can be confirmed in this patient without additional diagnostic information. Contemporary clinical nutrition literature increasingly recognizes this apparent paradox: patients with obesity can simultaneously have malnutrition, micronutrient deficiency, loss of lean tissue, or acute nutritional risk (Cristancho et al., 2024). This distinction is particularly relevant in ACS, where malnutrition is associated with adverse prognosis irrespective of the screening index used (Lai et al., 2023). Kang et al. (2022) similarly reported nutritional impairment among patients with ACS who were not underweight. Therefore, nutritional screening should not be omitted solely because a hospitalized cardiac patient has an elevated BMI.

The MST score of 3 appropriately triggered further nutrition assessment in this case. A recent systematic review found that MST has reasonable sensitivity and specificity for identifying malnutrition risk in hospitalized adults when compared with established reference approaches, while also emphasizing that no screening tool should be treated as a definitive diagnosis in

isolation (Cortés-Aguilar et al., 2024). Screening is therefore best understood as the first step in a pathway that leads to comprehensive assessment, nutrition diagnosis, and intervention.

Acute Intake Deficit Should Interpreted in the Clinical Context

The patient's initial energy and macronutrient intakes were substantially below estimated requirements during a period characterized by dyspnea, chest pain, fatigue, and sleep disturbance. Because the patient simultaneously received medical therapy and experienced changing clinical symptoms, the case cannot establish that any single symptom directly caused the reduction in intake. It does, however, illustrate the clinical importance of reassessment when symptoms change. ESPEN guidance for hospitalized and polymorbid medical patients supports individualized nutritional targets and repeated evaluation of intake and tolerance during illness rather than a static prescription (Thibault et al., 2021; Wunderle et al., 2023).

Evidence from broader medical inpatient populations also indicates that nutrition support is most effective when it is individualized and sustained. In a large real-world analysis, nutritional support among patients with malnutrition was associated with lower in-hospital mortality (Kaegi-Braun et al., 2021a). An updated meta-analysis of randomized trials similarly found that nutritional support reduced mortality, readmissions, and length of stay, with stronger effects in trials using higher-protein strategies and longer intervention duration (Kaegi-Braun et al., 2021b). These findings cannot be directly extrapolated to a single CHD case, but they support the general principle that inadequate intake deserves active clinical attention rather than passive observation.

Daily Monitoring Reveals Clinically Relevant Fluctuation

The seven-day trajectory was distinctly non-linear. Protein adequacy reached 113% on day 1 and 109% on day 6 but fell to 57% on day 7; energy adequacy decreased from 76% on day 1 to 53% on day 7. A single baseline assessment or an average across the admission could therefore obscure clinically important deterioration on a specific day. Digital-hospital implementation work has shown that routine monitoring of intake across meals can be linked to automated nutrition referrals and escalation of care (Ellick et al., 2025). In the present case, daily monitoring functioned as an early-warning process rather than merely an administrative record.

This approach is compatible with hospital nutrition standards that emphasize monitoring of food consumption, causes of reduced intake, and response to intervention (Thibault et al., 2021). When a patient repeatedly consumes less than the planned amount, the finding should prompt reassessment of barriers such as pain, dyspnea, fatigue, nausea, eating assistance needs, meal acceptability, and the appropriateness of the current diet order.

Nursing Role in Nutritional Screening and Mealtime Monitoring

The findings have direct relevance to nursing practice because nurses are continuously present during hospitalization and frequently observe the patient before, during, and after meals. Qualitative evidence shows that nurses' delivery of nutrition care is influenced by knowledge, role clarity, time, interdisciplinary communication, and organizational systems (Van den Berg et al., 2023). Training can improve nurses' capacity to perform structured nutritional-risk screening and connect risk categories with predefined care actions (Canta et al., 2026). Nonetheless, Deschepper et al. (2023) demonstrated that discrepancies between nurse and dietitian screening can occur and that under-recognition may delay dietetic involvement. The practical implication is that screening scores must trigger a clear escalation pathway rather than remain isolated documentation.

Mealtime care is another area where nursing involvement may influence intake. A nurse-driven bundle that addressed positioning, meal access, encouragement, assistance, and monitoring improved dietary intake among hospitalized older adults at risk of malnutrition (Zhang et al., 2024). Although that population differs from the present CHD case, the underlying care principle is relevant: nurses can identify and address modifiable barriers that prevent patients from consuming the diet prescribed by the nutrition team.

Interprofessional Collaboration Between Nurses and Nutrition Professionals

The case supports a collaborative workflow in which nursing observations and dietetic expertise are integrated. Interdisciplinary nutrition programs can improve nutrition-care processes, patient experience, assistance with meals, and care planning (Bell et al., 2021). An integrated nurse–dietitian workflow may strengthen nutritional surveillance during acute coronary hospitalization. Bedside nurses can document meal consumption, identify symptoms or functional limitations interfering with eating, and communicate clinically relevant changes to the dietitian. The dietitian can subsequently reassess nutritional requirements, dietary adequacy, and intervention suitability, while nursing staff continue monitoring meal tolerance and intake. Although this collaborative pathway is supported by contemporary interdisciplinary nutrition-care literature, its effectiveness was not directly evaluated in the present case. Such a cycle is consistent with contemporary hospital nutrition guidance and moves nutrition care from a one-time prescription toward an adaptive clinical process (Thibault et al., 2021; Wunderle et al., 2023).

Diet Education, Acceptability, and Secondary Prevention

Nutrition education was provided to both the patient and family, but the presence of education should not be equated with successful behavior change. Cardiac rehabilitation trials and systematic reviews demonstrate variable effects of nutrition education on dietary intake, risk factors, and adherence (Kocanda et al., 2023; Liu et al., 2022; Sinclair et al., 2024). In 2026, Souza et al. reported that individualized counseling improved adherence to protein recommendations in cardiovascular rehabilitation, but adherence remained suboptimal for several dietary targets. Likewise, a pilot randomized trial specifically targeting protein intake in people with CHD found that the educational intervention was feasible but produced limited dietary change (James et al., 2026). These data support a pragmatic approach in which education is individualized, repeated, culturally and economically feasible, and linked to follow-up rather than delivered as a single information session.

For long-term secondary prevention, the patient's pre-illness pattern of salted foods, fried foods, and low fruit and vegetable intake warrants broader dietary-quality improvement. International guidelines recommend a dietary pattern rich in plant foods, whole grains, lean protein, and unsaturated fats while minimizing sodium, saturated fat, and highly processed foods (Lichtenstein et al., 2021; Virani et al., 2023; Visseren et al., 2021). The CORDIOPREV randomized trial demonstrated fewer major cardiovascular events with a Mediterranean diet than with a low-fat diet among patients with established CHD during long-term follow-up, underscoring the value of sustainable dietary patterns rather than isolated nutrient restrictions (Delgado-Lista et al., 2022).

Sodium Restriction and Individualization of the Cardiac Diet

The history of frequent salted-food consumption supports counseling on sodium reduction. Experimental evidence demonstrates an approximately linear relationship between reductions in sodium intake and reductions in blood pressure (Filippini et al., 2021). Observational evidence also links more frequent discretionary salt use with greater cardiovascular risk (Ma et al., 2022). However, translation into sustained behavior is challenging. In the COSIP and STICK feasibility trials, dietary counseling reduced discretionary salt use and produced early blood-pressure changes, but long-term differences in urinary sodium were inconsistent (Smyth et al., 2023). Therefore, counseling should move beyond generic advice to 'eat less salt' and provide concrete substitutions that fit the patient's usual diet, such as reducing salted fish, limiting processed foods, avoiding table salt, and using herbs and spices for flavor.

Protein Adequacy and the Tension Between Energy Restriction and Acute Nutritional Risk

Protein intake was highly variable across the admission. The patient's obesity justified attention to long-term energy balance, yet the acute period was also characterized by inadequate total intake. Clinical nutrition in patients with obesity requires balancing cardiometabolic goals against the risk of inadequate energy and protein intake, particularly during illness (Cristancho et al., 2024). Hospital nutrition guidance likewise supports individualized rather than reflexive restriction when reduced intake or nutritional risk is present (Wunderle et al., 2023). In cardiac

rehabilitation populations, protein-focused interventions remain an emerging area: James et al. (2026) observed limited change after a targeted education intervention, and a recent randomized rehabilitation trial found that individualized counseling improved protein intake but did not fully normalize adherence across all nutritional targets (Souza et al., 2026). The coexistence of obesity and inadequate oral intake presents a clinically important challenge in determining appropriate nutritional priorities. Although weight management remains relevant to long-term cardiovascular secondary prevention, the immediate nutritional approach during acute hospitalization should consider the patient's current intake, clinical stability, nutritional risk, and tolerance of prescribed meals. In this case, the persistently low energy adequacy suggests that the appropriateness and feasibility of the prescribed energy-restricted diet warranted ongoing reassessment. However, the available data do not establish whether the dietary prescription itself contributed to the observed intake deficits.

IMPLICATION FOR NURSING PRACTICE

Nutritional screening should be performed systematically. Patients hospitalized with CHD should undergo early nutrition-risk screening, including those with overweight or obesity. A positive MST result should trigger further assessment rather than be treated as a stand-alone diagnosis (Cortés-Aguilar et al., 2024; Cristancho et al., 2024).

Routine bedside nutritional surveillance should include documentation of meal consumption, identification of symptoms affecting oral intake, and timely communication of clinically significant intake reductions to the nutrition team. Hospitals should establish locally appropriate referral and escalation criteria to facilitate dietitian-led reassessment and individualized intervention adjustments. These measures represent practice recommendations derived from the case observations and supporting literature, rather than interventions whose effectiveness was established by this study, and digital or standardized escalation pathways may improve the reliability of this process (Ellick et al., 2025).

Intake changes should be interpreted together with clinical symptoms. Reduced consumption should be assessed alongside dyspnea, chest pain, nausea, fatigue, sleep disturbance, mobility limitations, treatment burden, and other factors that may impair eating.

Screening must be linked to a rapid referral pathway. Training improves screening capacity, but screening is clinically useful only when abnormal results trigger dietetic review or another predefined action (Canta et al., 2026; Deschepper et al., 2023).

Mealtime assistance can be part of nursing care. When symptoms or fatigue interfere with eating, nursing actions may include optimizing positioning, minimizing avoidable interruptions, ensuring access to food, encouraging intake, and providing assistance when needed (Zhang et al., 2024).

Nutrition education should involve the family. Family participation may improve continuity of dietary change after discharge, particularly when recommendations require modification of habitual foods and cooking practices (Liu et al., 2022; Sinclair et al., 2024).

Nutrition monitoring should continue after discharge. Secondary prevention after ACS includes sustained lifestyle management, risk-factor control, and referral to cardiac rehabilitation where available (Byrne et al., 2023; Virani et al., 2023).

POSITION OF THE NUTRITION CARE PROCESS WITHIN COLABORATIVE CARE

The NCP is most useful when integrated into interprofessional clinical care. It provides a structure for answering four linked questions: What is the nutrition problem? Why is it occurring? What intervention is appropriate? Has the patient responded? In this case, the clearest nutrition problem was inadequate oral intake. Clinical symptoms formed part of the context that required repeated evaluation, and the seven-day monitoring record showed that response to the intervention was unstable. The findings therefore do not demonstrate that diet prescription or education directly improved intake. Rather, they show that the nutrition intervention required dynamic monitoring because the patient's response varied with the clinical course. This interpretation is consistent with interdisciplinary hospital nutrition models that integrate screening, monitoring, mealtime assistance, education, and referral as continuous processes (Bell et al., 2021; Ellick et al., 2025; Thibault et al., 2021).

LIMITATIONS

This case study has several limitations. First, the single-patient design limits transferability to other patients with coronary heart disease or acute coronary syndromes. Second, the seven-day observation period was insufficient to assess long-term nutritional status, dietary adherence, body composition, or cardiovascular outcomes. Third, dietary intake was assessed partly through self-reported information, introducing potential measurement and recall bias. Fourth, the absence of comprehensive body-composition and malnutrition diagnostic assessments prevented confirmation of malnutrition or muscle depletion. Fifth, changes in dietary intake could not be attributed to the nutritional intervention because concurrent medical treatment and clinical fluctuations were not controlled. Finally, the study did not formally evaluate nurse–dietitian communication processes or their effects on nutritional outcomes. Third, changes in intake cannot be attributed directly to the nutrition intervention because the patient also received medical treatment and experienced changing symptoms. Fourth, dietary assessment relied partly on self-report and was therefore susceptible to recall error, particularly for pre-illness dietary habits. Fifth, available biochemical data were limited. Sixth, the study did not include quantitative measures of acceptance of hospital food, adherence to education, psychological factors, or objective body-composition measures. Finally, MST identifies nutritional risk rather than establishing a diagnosis of malnutrition; contemporary recommendations support follow-up assessment when risk is detected (Cortés-Aguilar et al., 2024).

CONCLUSION

This case study illustrates the clinical value of applying the standardized Nutrition Care Process to identify and monitor nutritional problems during acute coronary hospitalization. Despite class I obesity, the patient exhibited a positive nutritional-risk screening result and substantial deficits in energy and macronutrient intake. Daily monitoring revealed considerable fluctuations in dietary adequacy, including a marked decline on the seventh observation day coinciding with recurrent clinical symptoms. These findings emphasize that elevated BMI should not preclude nutritional assessment and that dietary prescriptions require ongoing evaluation against actual intake and clinical tolerance. Integration of bedside nursing observations with dietitian-led reassessment may support more responsive nutritional care. Further prospective studies are needed to evaluate whether structured nurse–dietitian collaboration improves nutritional and clinical outcomes in hospitalized patients with coronary heart disease. Intake fluctuated over seven days and declined markedly on day 7 when clinical symptoms recurred. The case therefore illustrates that obesity does not exclude nutritional vulnerability during acute coronary illness and that the success of nutrition care cannot be inferred from diet prescription and education alone. In nursing practice, nutritional screening, daily intake monitoring, identification of barriers to eating, mealtime support, and timely communication with nutrition professionals should function as a coordinated process. Larger prospective studies are needed to determine whether structured nurse-dietitian collaborative models improve nutrient intake, length of stay, readmission, and cardiovascular outcomes in patients with CHD.

Hospitals should strengthen the integration of nutritional screening and daily intake monitoring into routine care for patients with CHD. Nurses can contribute to early risk detection, intake documentation, identification of clinical barriers to eating, and timely escalation to nutrition professionals. Nutrition professionals can then use these observations to reassess the NCP and individualize the intervention as the patient's condition evolves. After discharge, dietary counseling should continue through family support, outpatient services, or cardiac rehabilitation programs, consistent with contemporary secondary-prevention recommendations (Byrne et al., 2023; Virani et al., 2023).

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