

Managing The Risk of Nutritional Deficiencies Through Nutritional Management (Structured Dietary Education) in Children with Dengue Fever in Hospital

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Article Info	Abstract
Article History Submitted, 2026-05-13 Accepted, 2026-06-24 Published, 2026-06-30	Dengue hemorrhagic fever remains a major public health issue, particularly among children, as the number of people affected by this disease is quite high and the risk of complications is also significant. Children with dengue hemorrhagic fever often experience symptoms such as loss of appetite, nausea, and vomiting, which cause them to lose their appetite. In addition, their bodies require more energy to fight the infection, putting them at risk of nutritional deficiency. This study aims to explain how to manage the risk of nutritional deficiency by providing education on planned dietary patterns for children suffering from DBD. The method used is a descriptive case study approach focusing on the nursing care process, which includes data collection, problem identification, problem management, implementation of interventions, and outcome assessment. The primary nursing diagnosis identified was the risk of malnutrition due to decreased appetite and inadequate food intake. Interventions focused on managing nutrition and educating families about dietary patterns, such as feeding small but frequent meals, choosing easily digestible foods with high nutritional value, and ensuring fluid needs are met. The program was implemented by monitoring the types and amounts of food consumed, checking body weight, and providing guidance to parents on healthy and appropriate eating habits during illness and recovery. The results showed an increase in nutrient intake, greater consumption of healthy foods, and improved family knowledge regarding children's nutritional needs. Education on regular eating habits has been shown to help prevent nutritional problems and support the recovery of children with dengue fever.
Keywords: Nutritional deficiency, nutritional management, children, dengue fever, hospital	

Introduction

Structured approach to nutrition education ensures that information is conveyed consistently and effectively. This approach is effective in fostering long-term awareness, promoting healthy eating habits, and ensuring optimal nutrition to support physical growth and academic focus such as children.

The toddler stage is a period of child development spanning 12–36 months, characterized by increased exploration of the environment driven by a strong sense of curiosity (Kustriyanti, 2022). During this period, rapid growth and development occur in physical, cognitive, and social domains. A child's development will be optimal if it aligns with the developmental stages and tasks appropriate for their age (Haryani dan Adimayanti, 2018). To achieve this, children require a balanced nutritional intake and a supportive environment. However, various health issues such as infectious diseases and malnutrition can affect a child's long-term development, encompassing physical, mental, and social aspects.

One of the infectious diseases that remains a major health problem among children in Indonesia is Dengue Hemorrhagic Fever (DHF). This disease is caused by the dengue virus, which is transmitted through the bites of *Aedes aegypti* and *Aedes albopictus* mosquitoes. The disease spreads very rapidly and has a high morbidity rate, making DHF a continuing global health issue, particularly in Indonesia. If not properly treated, DF can be fatal. A World Health Organization report indicates that Indonesia has the highest number of DF cases in Southeast Asia (Antoro, B., Nurwindasari, N., Patria, A., Novega, M. D., 2021). Approximately 60–70% of cases occur in children under the age of 15, indicating that children are the population most at risk of DF infection and complications. Furthermore, DF-related deaths are often associated with previous outbreaks (Kemenkes RI, 2024).

the regional level, Central Java Province is one of the areas with a high incidence of dengue fever. Data from the Central Java Provincial Health Office (2024) recorded 17,636 cases with 217 deaths, the majority of which occurred among children ranging from toddlers to school-age children. Although there was a 25% decrease in cases during the January to June 2025 period, the number of cases remains high, with 6,226 active cases and 54 deaths. More than 60% of fatalities occurred among children, highlighting the high vulnerability of this age group. This situation is influenced by various factors, such as weakened immune systems and delays in medical treatment. In Semarang Regency, dengue fever cases are predominantly found in high-risk zones such as West Ungaran, East Ungaran, Bawen, and Ambarawa.

Clinically, DHF has an incubation period of 3–14 days, with initial symptoms including a sudden onset of high fever, accompanied by headache, joint pain, and a red rash (Masnarivan, Y., Haq, A., Dodi Putra, D., 2023). In children, DHF is also characterized by a decrease in platelet count and plasma leakage, which can lead to more severe conditions. This infection disrupts the body's metabolism, putting children at risk of insufficient intake of energy, protein, and fluids. Symptoms such as nausea, vomiting, and loss of appetite significantly reduce a child's nutrient intake (Mahmud, 2020). If this condition is not promptly addressed, it can lead to a weakened immune system, which may slow the healing process.

Nutritional status plays a crucial role in determining a child's immune response to infections, including DHF (Nugraheni, E., Rizqoh, D., & Sundari, 2023). Children with poor nutritional status face a higher risk of complications such as dengue shock syndrome compared to those with good nutritional status. Additionally, environmental factors and family habits influence the severity of the disease. Poor environmental sanitation, low adherence to the 3M practices (emptying, covering, and burying), and unhealthy eating habits are associated with an increased risk and severity of DHF in children (Tansil, M. G., Rampengan, N. H., & Wilar, 2021). Deficiencies in micronutrients such as iron, zinc, and vitamin C can also impair immune system function.

In addressing this situation, the family plays a crucial role in ensuring the child's nutritional needs are met during illness. The family serves as the primary provider and supervisor of daily meals. Therefore, a nursing intervention in the form of planned and targeted family-based dietary education is necessary. Nutritional management is a vital component of care for children with dengue hemorrhagic fever (DHF), aimed at meeting their macro- and micronutrient needs in accordance with their metabolic status. Research indicates that implementing nursing management based on nutritional assessment can reduce the risk of bleeding complications and accelerate the stabilization of the patient's hemodynamic status (Adimayanti, 2023). Interventions include assessing nutritional status, monitoring vital signs, collaborating with a dietitian, and educating families on appropriate food selection.

Nutrition education that involves families has proven effective in improving parents' understanding of their children's nutritional needs, including recommended food types and the importance of adequate fluid intake during illness. This approach also plays a role in ensuring the continuity of nutritional care after the child is discharged from the hospital. However, the implementation of nutrition education in some regional hospitals still faces various challenges, such as a shortage of nutritionists, short hospital stays, and varying levels of education among patients' families. The use of local food ingredients such as tempeh, spinach, and papaya can serve as a more practical and family-appropriate solution, and is effective in improving knowledge and behavior regarding the provision of nutritious food (Yarah, S., Muharrina, C. R., & Hikmah, 2024).

Based on the above discussion, the emerging issues are the persistently high risk of nutritional deficiency in children with dengue fever and the suboptimal implementation of structured dietary education in nursing practice. Therefore, a systematic nursing intervention in the form of a structured dietary education program is required. The objective of this scientific paper is to analyze the effectiveness of nutritional management through programmed dietary education in reducing the risk of nutritional deficiency in children with dengue fever. The results of this study are expected to contribute to improving the quality of pediatric nursing care, particularly in meeting nutritional needs and accelerating the healing process.

Methods

This scientific paper employs a descriptive approach using the case study method to provide an in-depth description of the nursing care process for a child diagnosed with a nursing risk of nutritional deficiency. This approach was chosen because it allows the author to present the patient's actual condition without manipulating the variables under study, ensuring that the data obtained is natural and contextual (Sugiyono, 2020). Through the case study, the author comprehensively examines a single unit of analysis the child and family with a focus on the implementation of nutritional management through a structured dietary education program. This approach is deemed relevant for understanding nursing phenomena holistically, particularly in the context of meeting the nutritional needs of children with Dengue Hemorrhagic Fever (DHF).

The units of analysis in this study are children at risk of nutritional deficiency who receive nursing care, as well as their families as the primary supporters in meeting the children's nutritional needs. Inclusion criteria include pediatric patients aged 12–36 months with a diagnosis of DBD who are at risk of nutritional deficiency, are conscious (*compos mentis*), and families who are willing to cooperate and provide the necessary information. Meanwhile, exclusion criteria included children with congenital abnormalities, severe metabolic disorders, or other congenital conditions that significantly affect nutritional status, as well as patients and families unwilling to participate in the study.

Data collection was conducted at Dr. Gondo Suwarno Ungaran Regional General Hospital from February to March 2026, following approval from the Ngudi Waluyo University Research Ethics Committee (No. 95/KEP/EC/UNW/2026). Data were collected through interviews, direct observation, physical examinations, and review of patients' medical records. Subjective data were obtained from parents or family members regarding the child's dietary patterns and habits, while objective data were derived from physical examination findings, observations of the patient's condition, and medical records supporting the child's nutritional status (Hidayat, 2020). Additionally, data collection was conducted in accordance with guidelines for pediatric nursing assessment and nursing process standards, which include diagnosis, intervention, implementation, and evaluation.

To ensure data validity, continuous observation techniques, diligence in data collection, triangulation of sources, and the use of references as theoretical comparators were employed (Mekarisce, 2020). The data obtained were then analyzed using a descriptive method with a nursing process approach, which includes the assessment stage, determination of nursing diagnoses, action planning, implementation of interventions, and evaluation of nursing care outcomes. All data were organized based on the priority level of the patient's problems so that the interventions provided were more targeted and aligned with the patient's primary needs.

In this study, operational definitions were used to clarify the concepts under investigation and prevent differences in interpretation. Management is defined as a planned process that systematically encompasses the planning, implementation, monitoring, and evaluation of nursing care. Toddlers are defined as children aged 12–36 months who are in a period of rapid growth and development (Kustriyanti et al., 2020). Nutrition is the body's process of obtaining and utilizing nutrients to support bodily functions (Rasmaniar, 2021). The risk of nutritional deficiency is a condition in which a child is at risk of inadequate nutrient intake without any obvious clinical signs (PPNI, 2018). Nutritional management is a nursing intervention to meet nutritional needs through monitoring and education (PPNI, 2019), while structured dietary education is a systematic learning process for families to manage their child's diet during illness. Dengue Hemorrhagic Fever is defined as an acute infectious disease caused by the dengue virus transmitted by the *Aedes aegypti* and *Aedes albopictus* mosquitoes, with primary symptoms including high fever, bleeding, and the risk of shock (Kemenkes RI, 2024).

This study was conducted in accordance with the principles of nursing research ethics, namely informed consent, anonymity, confidentiality, beneficence, and non-maleficence. Consent for the procedure was given voluntarily by the patients or their families after receiving a full explanation of the procedure's objectives, benefits, and risks. Respondent identities were kept confidential by using initials or pseudonyms. All data collected were used solely for research purposes and were not disseminated on an individual basis. Furthermore, all actions taken were intended to benefit the patients and cause no harm, either physically or psychologically, while prioritizing patient safety and comfort throughout the nursing care process.

Results and Discussion

The results of the nursing assessment indicate that a 17-month-old child diagnosed with Dengue Hemorrhagic Fever (DHF) presented with a chief complaint of high fever lasting four days, accompanied by a red rash, nausea, vomiting, and decreased appetite. This condition aligns with the clinical characteristics of DBD, which is marked by sudden fever as the body's response to dengue virus infection, as well as accompanying symptoms such as gastrointestinal disturbances that affect the patient's nutritional intake (Kemenkes RI, 2024).

Physical examination revealed the patient appeared lethargic, with dry lip mucosa and a pale face, indicating fluid and nutritional imbalance. This condition is a common manifestation in patients with infectious diseases who experience reduced nutritional intake and increased metabolic demands during illness (Rahmawati & Lestari, 2020). Laboratory test results revealed thrombocytopenia with a platelet count of $95 \times 10^3/\mu\text{L}$, which is one of the primary indicators in dengue hemorrhagic fever (DHF) cases. This decrease in platelets occurs due to platelet destruction and impaired production during dengue virus infection (Sari et al., 2021).

From a nutritional status perspective, the patient experienced weight loss from 9.8 kg to 9.5 kg, with a body mass index of 14.3, which falls into the underweight category. This condition indicates an imbalance between increased metabolic needs due to infection and

decreased nutritional intake (Kurniawati et al., 2021). The established nursing diagnosis is risk for nutritional deficit related to increased metabolic needs and decreased nutritional intake due to the infectious process. This diagnosis aligns with nursing diagnosis standards, which state that risk for nutritional deficit is a condition where an individual is at risk of inadequate nutrient intake (PPNI, 2018b).

Nursing interventions focus on nutritional management through monitoring food intake, serving appealing meals, and providing dietary education to the family. This approach is based on Maslow's hierarchy of needs, which positions nutrition as a primary physiological need that must be met before other needs (Maslow, 1943). Providing food in small but frequent portions and selecting easily digestible foods has proven effective in increasing nutrient intake in children experiencing a decreased appetite during illness. This strategy is recommended to meet the nutritional needs of children with infectious conditions (WHO, 2021).

During implementation, there was a gradual improvement in patients' nutritional intake, marked by an increase in the amount of food consumed and an improvement in patients' clinical condition. This indicates that the nutritional management intervention provided was able to accelerate the patients' recovery process (Adimayanti, 2023). The evaluation revealed an increase in appetite, a reduction in complaints of nausea and vomiting, and an increase in patient activity. These changes indicate that the intervention provided had a positive impact on the patients' condition and supported the healing process (M. Bustan, 2023).

Additionally, family involvement in implementing dietary education is a key factor in the success of nursing interventions. The family's role in meeting the child's nutritional needs has been shown to influence improvements in the patient's health status during care (Tansil, M. G., Rampengan, N. H., & Wilar, 2021). Overall, the results indicate that the implementation of nutritional management through structured dietary education is effective in preventing nutritional deficiencies in children with dengue hemorrhagic fever (DHF). This approach emphasizes the importance of nutritional monitoring and family involvement as integral components of successful nursing care (PPNI, 2018).

Conclusion and Recommendations

Based on the results of nursing care for pediatric patients with Dengue Hemorrhagic Fever (DHF) at risk of nutritional deficiency, it can be concluded that the implementation of nutritional management through structured dietary education is effective in helping to prevent nutritional deficiency during the course of treatment. Nutritional problems in pediatric patients with DBD arise as a result of increased metabolic needs during the infection process, accompanied by symptoms such as high fever, nausea, vomiting, and decreased appetite. These conditions have the potential to hinder the healing process if not addressed promptly and appropriately.

The case-based nursing care method applied was deemed appropriate for patient needs as it allows for comprehensive assessment, accurate diagnosis, and the development of targeted interventions tailored to the patient's clinical condition. The implementation of interventions—including monitoring nutritional status, providing appropriate meals, and providing dietary education to families—has proven effective in increasing patients' appetite, gradually improving nutritional intake, and enhancing family involvement in the care process.

The success of these interventions demonstrates that structured dietary education is a simple, practical method with significant benefits in supporting the recovery process of pediatric patients with dengue hemorrhagic fever (DHF). The positive outcomes are evident not only in the improvement of patients' clinical conditions but also in the increased knowledge of families regarding meeting their children's nutritional needs during illness. This underscores that the success of nutritional management is highly influenced by effective therapeutic communication and active family participation. For further development, research with a broader subject population and a longer observation period is needed to evaluate the effectiveness of structured dietary education more thoroughly. Additionally, the development of visual or digital educational media is recommended to enhance families' understanding of implementing nutritional management for children.

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