

ASSESSMENT OF HOSPITAL-ACQUIRED MALNUTRITION AMONG UNDER-FIVE CHILDREN AND THE ROLE OF NUTRITIONAL STATUS AT ADMISSION IN A TERTIARY CARE HOSPITAL, BENGALURU

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ABSTRACT

Background

Hospital-acquired malnutrition (HAM) among under-five children is a significant public health concern, especially in developing countries such as INDIA. Children admitted to hospitals are at increased risk of nutritional deterioration due to illness-related factors, inadequate dietary intake, prolonged hospitalization, feeding difficulties, and hospital care practices. Poor nutritional status during hospitalization may negatively affect recovery, increase complications, prolong hospital stay, and worsen clinical outcomes. Assessment of nutritional status at the time of admission plays an important role in identifying children at risk and preventing further nutritional decline during hospitalization. Therefore, the present study was conducted to assess hospital-acquired malnutrition among under-five children and the role of nutritional status at the time of admission in selected tertiary care hospitals.

Objectives

- 1.To determine the nutritional status of under-five children at the time of hospital admission.
- 2.To estimate the prevalence of hospital-acquired malnutrition among under-five children.
- 3.To estimate the relationship between baseline nutritional status and hospital-acquired malnutrition
- 4.To identify contributing factors associated with hospital-acquired malnutrition

Methods

A quantitative research approach with a longitudinal observational study design was adopted. The study was conducted among under-five children admitted to selected tertiary care hospitals. A total of 80 children were selected using a convenient sampling technique. Data were collected using a structured socio-demographic questionnaire, nutritional assessment parameters, and anthropometric measurements, including weight-for-age and height/length-for-age. Nutritional status was assessed at both admission and discharge. Contributing factors related to illness, feeding practices, and hospital care processes were assessed throughout the hospital stay through observation, review of medical and nursing records, and caregiver interviews. The average Length of stay among the under-five children was 5 days.

The collected data were analyzed using SPSS version 20. Descriptive statistics, including frequency and percentage, were used to describe socio-demographic variables and nutritional factors. The Chi-square test was used to examine the relationship between baseline nutritional status and hospital-acquired malnutrition. Logistic regression analysis was performed to assess the association between contributing factors and hospital-acquired malnutrition.

Results

The prevalence of hospital-acquired malnutrition among under-five children was 37.5%. No significant association was found between baseline nutritional status at admission and hospital-acquired malnutrition. Among the contributing factors, feeding practices showed a statistically significant association with hospital-acquired malnutrition, whereas illness severity and length of hospital stay showed no significant relationship. These findings highlight the importance of appropriate feeding practices and nutritional monitoring during hospitalization.

Conclusion

The study concluded that hospital-acquired malnutrition is a common problem among hospitalized under-five children. Although nutritional status at admission was not significantly associated with the development of hospital-acquired malnutrition, feeding practices during hospitalization were significantly related to nutritional outcomes. Early nutritional assessment, regular monitoring, and timely nutritional interventions are essential to prevent deterioration in nutritional status during hospitalization. The findings emphasize the need for standardized nutritional screening and nutrition-focused care practices in pediatric hospital settings.

KEYWORDS: Hospital-acquired malnutrition, under-five children, nutritional status at admission, anthropometric assessment.

INTRODUCTION

Malnutrition is a major global public health problem that significantly contributes to morbidity and mortality among children. Despite advancements in healthcare services, hospitalized children remain particularly vulnerable to malnutrition due to their compromised nutritional status and the physiological stress caused by illness. (World Health Organization [WHO], 2023)

Hospital-acquired malnutrition (HAM) refers to the deterioration of nutritional status that develops during hospitalization and was not present at the time of admission. Hospital-acquired malnutrition can worsen disease severity, prolong hospital stay, increase the risk of complications, and negatively affect the overall growth and development of children. Evidence indicates that Hospital-Acquired Malnutrition is associated with prolonged hospital stay, increased risk of complications, delayed recovery, and poor growth and developmental outcomes in hospitalized children (Becker et al., 2022; Huysentruyt et al., 2023).

Children are in a critical stage of growth and development and require adequate nutrition for optimal physical, cognitive, and immunological functioning. Any interruption in nutritional intake, absorption, or metabolism during hospitalization can result in immediate as well as long-term health consequences. Malnutrition among hospitalized children may lead to delayed recovery, increased susceptibility to infections, impaired wound healing, prolonged hospitalization, and increased healthcare expenditure (Mehta et al., 2017). Therefore, early identification and management of Hospital-acquired malnutrition are essential for improving clinical outcomes and promoting child health.

Globally, the prevalence of Hospital-Acquired Malnutrition ranges from 6% to 50%, with children being particularly susceptible due to their higher metabolic demands and limited nutritional reserves. A high prevalence of malnutrition at admission and further nutritional deterioration during hospitalization. Similar findings have also been reported in Latin American countries. In India, studies have shown that approximately 30–39% of hospitalized children experience Hospital-acquired malnutrition (Kumar et al., 2018; Sharma et al., 2020). Contributing factors include inadequate dietary intake, prolonged fasting periods, delayed nutritional screening, disease-related catabolism, lack of specialized nutrition personnel, poor hospital food intake, and prolonged hospital stay.

Furthermore, a 2023 systematic review and meta-analysis reported that the pooled prevalence of malnutrition among critically ill hospitalized children was 37.2%, highlighting the persistent burden of malnutrition in paediatric inpatient settings worldwide.

The clinical consequences of Hospital-Acquired Malnutrition are severe. Children with malnutrition are at greater risk of infections, delayed wound healing, impaired recovery, prolonged hospitalization, increased readmission rates, and higher healthcare costs. In addition to physical complications, malnutrition can adversely affect the psychological and developmental well-being of children, leading to poor growth and delayed developmental outcomes.

Nutritional status at the time of hospital admission plays a crucial role in determining the child's risk of developing Hospital-Acquired Malnutrition. Children who are undernourished or at nutritional risk during admission are more vulnerable to further nutritional deterioration during hospitalization. Therefore, comprehensive nutritional assessment at admission, including anthropometric measurements and dietary evaluation, is essential for early identification of at-risk children and timely nutritional intervention. (WHO, 2023; ESPGHAN Committee on Nutrition, 2023).

Routine nutritional screening and continuous monitoring during hospital stay are often inadequately practiced in many healthcare settings. Conducting research to assess the prevalence and contributing factors of HAM can provide evidence for the development of hospital policies, nutritional guidelines, and targeted interventions aimed at reducing the occurrence of HAM and improving paediatric healthcare outcomes.

Although several studies have focused on paediatric malnutrition, limited research is available specifically on Hospital-Acquired Malnutrition among under-five children in India. Most existing studies primarily focus on malnutrition present at admission and pay less attention to nutritional deterioration occurring during hospitalization. Identifying the prevalence, contributing factors, and association between nutritional status at admission and the development of HAM is important for strengthening hospital-based nutritional care practices.

Therefore, the present study aims to assess the prevalence of Hospital-Acquired Malnutrition among under-five children and to determine the role of nutritional status at the time of hospital admission in selected tertiary care hospitals in Bangalore. The findings of the study are expected to help healthcare professionals, nurses, paediatricians, and nutritionists understand the extent of HAM and facilitate early detection, prevention strategies, and individualized nutritional interventions. Ultimately, addressing Hospital-Acquired Malnutrition is essential for reducing morbidity, improving clinical outcomes, and promoting holistic child health during hospitalization.

MATERIALS AND METHODOLOGY

Research Approach:

Considering the nature of the problem and the objectives of the study, a quantitative research approach was considered appropriate for the present study.

Research Design:

The research design selected for the study was a longitudinal observational research design.

In this study, the participants were observed over 5 days without altering their routine care. to identify changes in nutritional status during hospitalization, determine the incidence of hospital-acquired malnutrition, and examine factors associated with its development.

Variables

Study Variables

Nutritional status of under-five children

Contributing factors to Hospital Acquired Malnutrition (HAM)

Attribute Variables

Socio-demographic characteristics of under-five children and parents which include:

- ☐ Age of the child
- ☐ Gender
- ☐ Religion
- ☐ Type of family
- ☐ Family income
- ☐ Educational status of parents
- ☐ Occupation of parents
- ☐ Area of residence
- ☐ Duration of hospital stay
- ☐ Diagnosis of illness

Setting Of The Study:

Setting refers to the physical location and environment where the study is conducted and data collection takes place. The criteria for selecting the setting included accessibility of the samples, feasibility of conducting the study, availability of under-five children, and familiarity of the investigator with the hospital settings.

The setting for the present study was the paediatric medical and surgical wards of Ramaiah Medical College Hospital and KC General Hospital.

Population:

The population in the study refers to under-five children admitted in the paediatric wards of the hospitals.

Sample:

Sample is a part or subset of the population selected for the study. Sampling is the process of selecting subjects from the population to obtain data that can be generalized to the entire population.

Samples in the study were under-five children admitted in paediatric wards and their caregivers

Sampling Technique:

Sampling is an important component of the research methodology that enables the researcher to select appropriate subjects from the target population for the study

In this study, a non-probability convenient sampling technique was used to select the samples based on their availability and fulfilment of inclusion criteria.

Sample Size Determination

The sample size was estimated based on findings from Joosten and Hulst (2008) reported that the prevalence of malnutrition among hospitalized children ranged from 15% to 30%. Assuming a prevalence of 30% in the present study, with a 95% confidence level and 10% absolute precision, the minimum required sample size was calculated to be 80 participants.

Selection Criteria

Inclusion Criteria:

Under-five children:

- ☐ who are admitted in paediatric medical and surgical wards of selected hospitals
- ☐ aged between 6 months to 5 years,
- ☐ Who stay for more than 5 days.

Exclusion Criteria:

Under-five children:

- ☐ Critically ill and are admitted in PICU.
- ☐ Who received steroids and other appetite stimulant drugs or enteral nutrition during the previous 3 months.
- ☐ Diagnosed with cerebral palsy or genetic disorder

Description Of The Tool:

The data collection tools were developed based on literature review, recommendations of WHO (World Health Organization), ESPEN (European society for clinical nutrition and metabolism) and ASPEN (American Society for Parenteral and Enteral nutrition) on assessment of paediatric nutrition risk and malnutrition principles.

The tool used for data collection is a Structured questionnaire on Nutritional status and contributing factors for Hospital Acquired Malnutrition among Under-five children, which had 4 sections.

Section A: Base line Data (At admission)

Consisted of items related to the baseline demographic and clinical characteristics of the hospitalized under-five children, which were collected at the time of admission. The variables included identification number, hospital identification number, date of admission, age (in months/years), sex, family monthly income, ward of admission (Paediatric Medical or Paediatric Surgical), primary diagnosis, associated comorbidities (if any), and primary caregiver. This information was collected from the child's medical records and through interviews with the primary caregiver.

Section B: Baseline nutritional assessment (At admission)

Anthropometry

- Weight: _____ kg
- Height/Length: _____ cm

Z-scores at Admission

- Weight-for-Length/Height; _____
- Weight-for-Age: _____

Nutrition Status at Admission (Based on WHO growth standards)

Normal ≥ -2 SD

Moderate malnutrition -3 TO < -2 SD

Severe malnutrition < -3 SD

Section C: Contributing factors to hospital acquired malnutrition

- Illness related factors
- Feeding & Intake related factors
- Hospital care process related factors

Section D: Nutritional status at the time of discharge

- Weight _____ kg
- Height / Length: _____ cm

Z-scores:

Weight-for-Length/Height

Weight-for-Age

Scoring And Interpretation Of The Contributing Factors:

Domain	Total Score
Illness-related	6
Feeding-related	5
Hospital-related	4

Domain	Interpretation
Illness-related	Low (0–2)
	Moderate (3–5)
	High (≥ 6)
Feeding-related	Low (0–1)
	Moderate (2–3)
	High (4–5)
Hospital-related	Low (0–1)
	Moderate (2–3)
	High (4)

Validity And Reliability

Content Validity

The content validity of the research tool was established through expert validation. The prepared tool was submitted to a panel of experts in the field of Child Health Nursing. The experts evaluated the tool for clarity of language, relevance of the items, adequacy of the content, appropriateness of the scoring pattern, and overall suitability in relation to the objectives of the study. Based on their valuable suggestions and recommendations, the necessary modifications were incorporated and the Tool was modified.

To ensure the accuracy of anthropometric measurements, the weighing scale used for the study was calibrated by CYRIX Health Care Pvt. Ltd. on 29 November 2025. The measuring tape used for assessing length/height was manufactured by

IKIS and was checked for accuracy before data collection. These measures ensured the reliability and precision of the anthropometric measurements obtained during the study.

Reliability

Reliability refers to the consistency and dependability of the of the tool. the tool was administered to 10 under-five children. Equivalence -(inter-rater) reliability was assessed for anthropometric measurements ($r=1.0000$). The internal consistency was assessed using Cronbach's alpha to determine internal consistency of the tool on assessing contributing factors for hospital-acquired malnutrition. The analysis revealed a Cronbach's alpha value of 0.912 indicating excellent internal consistency.

Ethical Consideration

Ethical clearance was obtained from Ramaiah University of applied sciences Ethical Committee

Pilot Study

The primary objective of this pilot study was to evaluate the feasibility of carrying out the main study, especially in terms of time management, availability of participants, and the suitability of data collection methods and procedures.

- Permission was obtained from the concerned authorities of Ramaiah Medical College Hospital prior to data collection.
- Data collection was carried out from 14th January to 23rd January in the podiatric general ward and podiatric surgical ward of Ramaiah Medical College Hospital.
- A total of 10 under-five children were selected based on the inclusion and exclusion criteria using convenient sampling technique.
- Informed consent was obtained from the primary caregiver of each child before data collection by maintaining the confidentiality of information.
- Data were collected using a pre-validated structured data collection tool
- The data was analyzed using SPSS version 20. Findings of the pilot study revealed. minor weight changes in some children during hospitalization, none of the children met the established diagnostic criteria for Hospital-Acquired Malnutrition (HAM)
- Pilot study revealed that the tools were feasible to conduct the main study.

Data Collection Procedure

- Data collection was carried out after obtaining ethical clearance from the ethics committee and formal permission from the institution and hospital authorities of Ramaiah medical college hospital and KC General Hospital.
- Data collection was carried out from 2nd February to 13th March in the paediatric general ward and paediatric surgical ward of Ramaiah medical college hospital and KC General Hospital
- A total of 80 under-five children were selected based on the inclusion and exclusion criteria using convenient sampling technique.
- Informed consent was obtained from the primary caregiver of each child before data collection
- Baseline socio-demographic, Anthropometric measurements and contributing factors were collected at admission from patient records and through caregiver interview.
- Baseline nutritional assessment was performed by measuring weight and length/height using standardized and calibrated instruments at the time of admission and discharge.
- Weight was measured using a calibrated digital paediatric weighing scale. Children below 2 years of age were weighed without clothes, while children aged 2–5 years were weighed with light clothing and without footwear.
- Length was measured for children below 2 years of age using an infantometer, with the child placed in a supine position, the head against the fixed headboard, and the legs fully extended. Height was measured for children aged 2–5 years using a stadiometer, with the child standing erect, barefoot, heels together, and the head positioned in the Frankfort plan
- Z-scores were calculated using WHO growth standards to determine nutritional status at admission and also at discharge.
- Contributing factors associated with hospital-acquired malnutrition, including illness-related factors, feeding and nutritional intake, and hospital care process-related factors, were assessed from admission to discharge using direct observation, caregiver interviews, and review of medical and nursing records.
- Throughout the hospital stay, factors contributing to hospital-acquired malnutrition, illness-related factors, feeding practices, dietary intake, and hospital care processes, were systematically assessed through direct observation, review of medical and nursing records, and structured interviews with caregivers.
- The data were organized, tabulated, and analysed by using descriptive and inferential statistics with the assistance of SPSS version 20

Data Analysis

Descriptive Statistics

Frequency and percentage were used to describe socio-demographic variables and Contributing factors

Inferential Statistics

Chi-square test was used to examine the relationship between baseline nutritional status and hospital-acquired malnutrition, logistic regression analysis is performed to assess association of contributing factors with hospital-acquired malnutrition.

RESULTS

The prevalence of hospital-acquired malnutrition among under-five children was 37.5%. No significant association was found between baseline nutritional status at admission and hospital-acquired malnutrition. Among the contributing factors, feeding practices showed a statistically significant association with hospital-acquired malnutrition, whereas illness severity and length of hospital stay showed no significant relationship. These findings highlight the importance of appropriate feeding practices and nutritional monitoring during hospitalization. The total number of 80 under-five samples was taken to conduct the study.

TABLE 1: Nutritional status of under-five children at admission
n = 80

Domain	Interpretation
Illness-related	Low (0–2)
	Moderate (3–5)
	High (≥ 6)
Feeding-related	Low (0–1)
	Moderate (2–3)
	High (4–5)
Hospital-related	Low (0–1)
	Moderate (2–3)
	High (4)

The nutritional status of under-five children at the time of hospital admission based on WHZ Scores. Among the 80 children, the majority (63.7%) had normal nutritional status (≥ -2 SD). However, 20.0% of the children were identified with moderate acute malnutrition (MAM), and 16.3% had severe acute malnutrition (SAM). Overall, the findings indicate that a considerable proportion (36.3%) of children were malnourished at the time of hospital admission.

Table 2: Comparison Of Nutritional Status Of Under Five Children At The Time Of Admission And Discharge
n = 80

Nutritional status	Admission		Discharge	
	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)
Normal (≥ -2 sd)	51	63.7	49	61.3
Moderate acute malnutrition (MAM) (-3 to < -2 SD)	16	20.0	11	14.0
Severe acute malnutrition (SAM) (< -3 SD)	13	16.3	20	20.0
Total	80	100.0	80	100.0

The majority of children were nutritionally normal, with 51 (63.7%) having a weight-for-height z-score of ≥ -2 sd. Moderate acute malnutrition was identified in 16 (20.0%) children, whereas 13 (16.3%) were classified as severe acute malnutrition.

By the time of discharge, the percentage of children with normal nutritional status had slightly declined to 49 (61.3%). The number of children with moderate acute malnutrition decreased to 11 (14.0%), showing improvement in some cases. In contrast, severe acute malnutrition increased to 20 (20.0%), indicating deterioration in nutritional status among certain children during their hospital stay.

Table 3: Phenotypic Criterion For Assessing HAM Among Under-Five Children
n=80

Phenotypic criterion	Frequency(n)	Percentage (%)
$\geq 2\%$ of weight loss	15	18.8
$\geq 5\%$ of weight loss	15	18.8
No weight loss	50	62.5
Total	80	100.0

The majority of children (62.5%) did not experience any weight loss during hospitalization. Equal proportions of children (18.8% each) had 2% and 5% weight loss. This indicates that only a smaller proportion of children met the phenotypic criterion for weight loss.

Prevalance

Number of HAM cases

Total number of subjects

$$= \frac{30}{80} \times 100$$

Hospital acquired malnutrition = 37.5%

TABLE 4: Logistic regression for contributing factors associated with Hospital Acquired Malnutrition
n=80

Variables	Odds Ratio (OR)	95% confidence interval	p-value	Inference
Illness score	2.25	0.759 – 6.672	0.144	Not significant
Feeding score	4.80	0.869 – 26.5	0.012	Significant
Hospital care related score	0.592	0.036 – 9.826	0.714	Not significant
Length of stay	1.316	0.960 – 1.777	0.089	Not significant

- Illness score ($\beta = 2.250$, $p = 0.144$): not statistically significant ($p > 0.05$). This indicates that illness score is not significantly associated with ham, although there is a mild increasing trend in risk.
- Feeding score ($\beta = 4.80$, $p = 0.012$): statistically significant ($p < 0.05$). This suggests that poor feeding practices significantly increase the risk of hospital-acquired malnutrition (ham).
- Hospital care related score ($\beta = 0.592$, $p = 0.714$): not statistically significant. This indicates no meaningful association between hospital care factors and HAM. Length of stay ($\beta = 1.306$, $p = 0.089$): not statistically significant

DISCUSSION

Sociodemographic Characteristics

In the present study, the majority of children (60%) were aged 6–12 months, and 60% were males. Most children (91.3%) were admitted to the paediatric general ward, while respiratory illnesses (46.3%) constituted the most common diagnosis. Nearly half of the participants belonged to high-income families, and mothers were the primary caregivers for 96.3% of the children.

These findings are consistent with studies by Saengnipanthkul et al. (2024), who reported that infants and younger children constituted the largest proportion of hospitalized paediatric patients at risk for hospital-acquired malnutrition because of rapid growth requirements and increased vulnerability to illness. Similarly, Joosten and Hulst (2020) observed that respiratory illnesses are among the leading causes of paediatric hospitalization and are frequently associated with nutritional deterioration due to increased metabolic demand and reduced dietary intake.

The predominance of mothers as primary caregivers is also consistent with findings reported in several paediatric nutrition studies, where mothers were responsible for the majority of feeding and caregiving activities during hospitalization.

Nutritional Status at Admission

The present study found that 63.7% of children had normal nutritional status at admission, while 20% had moderate acute malnutrition and 16.3% had severe acute malnutrition. Overall, more than one-third (36.3%) of the children were already malnourished when admitted to the hospital.

These findings are comparable with those of Foster et al. (2020), who reported that a substantial proportion of hospitalized children had pre-existing malnutrition on admission, particularly those with chronic illnesses. Likewise, Alsharif et al. (2025) emphasized that many paediatric patients enter the hospital with compromised nutritional status, making them more susceptible to further nutritional deterioration during hospitalization.

The findings highlight the importance of routine nutritional screening at admission to facilitate early identification and management of malnutrition.

Comparison of Nutritional Status Between Admission and Discharge

The present study demonstrated a slight decline in the proportion of children with normal nutritional status from 63.7% at admission to 61.3% at discharge. Although the number of children with moderate acute malnutrition decreased, the proportion with severe acute malnutrition increased from 16.3% to 20%, suggesting nutritional deterioration among some hospitalized children. Similarly, Saengnipanthkul et al. (2024) reported that nutritional status deteriorated during hospitalization in a proportion of paediatric patients despite standard medical care. Their study identified prolonged hospitalization and inadequate nutritional intake as major contributors to nutritional decline.

The increase in severe acute malnutrition observed in the present study further supports the need for continuous nutritional monitoring throughout hospitalization.

Change in Anthropometric Z-scores

The present study found a slight improvement in weight-for-age Z-score (WAZ) from -0.96 to -0.74 , whereas weight-for-height Z-score (WHZ) remained almost unchanged. However, neither change was statistically significant.

These findings agree with Pichler et al. (2020), who observed minimal short-term changes in anthropometric indices during hospitalization, particularly among children with shorter hospital stays. Likewise, Cass and Charlton (2022) reported that measurable anthropometric changes often require longer observation periods, although nutritional risk may increase because of reduced intake and illness.

The absence of statistically significant changes may be attributed to the relatively short duration of hospitalization in the present study.

Prevalence of Hospital-Acquired Malnutrition

The present study reported a hospital-acquired malnutrition prevalence of 37.5%.

This prevalence is comparable with findings reported by Saengnipanthkul et al. (2024), who found that approximately one-third of hospitalized children experienced nutritional deterioration during admission. Similarly, the systematic review by Cass and Charlton (2022) reported that nutritional deterioration during hospitalization ranged from 10% to 65%, depending on patient characteristics, nutritional assessment methods, and duration of hospital stay.

The prevalence observed in the present study indicates that hospital-acquired malnutrition remains an important clinical concern requiring routine nutritional surveillance.

Relationship Between Baseline Nutritional Status and Hospital-Acquired Malnutrition

The present study found no statistically significant association between baseline nutritional status and the development of hospital-acquired malnutrition ($\chi^2 = 3.11$, $p = 0.211$).

Similar findings were reported by Saengnipanthkul et al. (2024), who demonstrated that children with normal nutritional status at admission could also develop hospital-acquired malnutrition if exposed to prolonged illness, poor dietary intake, or inadequate nutritional support. Their findings suggest that baseline nutritional status alone is not sufficient to predict nutritional deterioration.

These findings indicate that all hospitalized children require ongoing nutritional assessment regardless of their nutritional status at admission.

Contributing Factors Associated with Hospital-Acquired Malnutrition

The present study found that illness-related factors were the most common contributors to hospital-acquired malnutrition, followed by feeding-related factors and hospital care process-related factors. Most children were classified as having moderate illness-related risk.

These findings are supported by Cass and Charlton (2022), who identified illness severity, reduced appetite, gastrointestinal symptoms, prolonged fasting, and inadequate dietary intake as the most common contributors to nutritional deterioration during hospitalization. Likewise, Alsharif et al. (2025) emphasized that acute illness increases metabolic demands while simultaneously reducing oral intake, thereby increasing the risk of malnutrition.

Predictors of Hospital-Acquired Malnutrition

Logistic regression analysis showed that feeding score was the only statistically significant predictor of hospital-acquired malnutrition (OR = 4.80, $p = 0.012$). Illness score, hospital care-related score, and length of hospital stay were not statistically significant predictors.

These findings are consistent with Saengnipanthkul et al. (2024), who reported that inadequate nutritional intake was one of the strongest predictors of hospital-acquired malnutrition. Similarly, Alsharif et al. (2025) concluded that poor feeding practices significantly increase the likelihood of nutritional deterioration and recommended early nutritional interventions to improve intake during hospitalization.

In contrast, some studies have identified length of hospital stay as an independent predictor of hospital-acquired malnutrition. For example, Cass and Charlton (2022) found that prolonged hospitalization was associated with increased nutritional deterioration. The lack of significance in the present study may be due to the relatively small sample size and shorter duration of hospitalization among participants.

Overall, the findings of the present study demonstrate that hospital-acquired malnutrition is a common problem among hospitalized under-five children, with a prevalence of 37.5%. Although no significant changes in anthropometric Z-scores were observed during hospitalization, nutritional deterioration occurred in a substantial proportion of children. Feeding-related factors emerged as the strongest predictor of hospital-acquired malnutrition, highlighting the importance of regular nutritional assessment, close monitoring of dietary intake, and timely nutritional interventions. These findings are consistent with recent international literature, which emphasizes routine nutritional screening, individualized nutrition support, and multidisciplinary nutritional care as essential strategies for preventing hospital-acquired malnutrition in pediatric patients.

Strengths

1. The study addresses an important yet often overlooked issue of hospital-acquired malnutrition among under-five children.
2. Assessment of nutritional status at both admission and discharge enabled identification of nutritional changes occurring during hospitalization.

3. The study provides evidence regarding the relationship between nutritional status at admission and the development of hospital-acquired malnutrition.
4. Findings of the study can help healthcare professionals identify children at risk for nutritional deterioration early during hospitalization.

Limitations Of The Study

1. Detailed dietary assessment before hospitalization was not performed.
2. The study focused only on hospitalized under-five children

Recommendations

1. Routine nutritional screening should be implemented for all children at the time of hospital admission.
 2. Periodic nutritional assessment and growth monitoring should be carried out during hospitalization.
 3. Standardized feeding protocols should be developed and followed in paediatric wards.
 4. Educational programs should be conducted for nurses and caregivers regarding the prevention of hospital-acquired malnutrition.
 5. Multidisciplinary nutritional support involving nurses, physicians, and dietitians should be strengthened.
 6. Similar studies may be conducted with larger sample sizes and in multiple healthcare settings to improve the generalizability of findings.
- Future research may explore the effectiveness of nutritional intervention programs in reducing hospital-acquired malnutrition

CONCLUSION

The present study concluded that hospital-acquired malnutrition is a common problem among under-five children admitted to podiatric wards, with a prevalence of 37.5%. Although baseline nutritional status, illness severity, and length of hospital stay did not show a statistically significant association with HAM, feeding practices were found to have a significant relationship with the development of hospital-acquired malnutrition.

The study highlights that inadequate feeding practices during hospitalization can negatively affect the nutritional status of children and may delay recovery. Therefore, routine nutritional screening, continuous growth monitoring, early identification of nutritional risk, and timely nutritional interventions are essential components of Child care.

The study also emphasizes the important role of nurses and healthcare professionals in maintaining adequate nutritional support for hospitalized children. Strengthening nutritional assessment protocols and improving feeding management practices in hospitals can help reduce the prevalence of hospital-acquired malnutrition and improve the overall health outcomes of under-five children.

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