

RESEARCH ARTICLE

Malnutrition and associated factors among sick children needing hospital care in District Umerkot, Pakistan

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Abstract

Background: In the Umerkot area of Pakistan, where malnutrition is common, a local hospital discovered that one-third of the hospitalized children were undernourished. The purpose of this research was to identify the prevalence of malnutrition and its associated among pediatric inpatients.

Methods: A cross-sectional research was carried out on 298 children who were hospitalized to the District Headquarter Hospital in Umerkot and ranged in age from 06 months to 05 years. In order to determine malnutrition in accordance with WHO guidelines, anthropometry measures such as mid-upper arm circumference (MUAC) were taken. The clinical diagnosis, immunization history, and food intake were documented.

Results: The prevalence of malnutrition was 34.6%, with moderate (26.5%) and severe (8.1%) cases included. In children, underweight afflicted 29.5%. Common diagnoses during admission were measles (18.8%), pneumonia (17.4%), and diarrhea (15.8%). Malnutrition was significantly correlated with inadequate food intake and an age-inappropriate vaccination rate of 8.7%, which is in agreement with previous research results.

Conclusions: In order to address the critically high prevalence of inpatient malnutrition, pediatric care must include standards for nutritional assessment and treatment as well as capacity development. In local communities, it's also critical to do routine growth monitoring and to promote immunization, proper hygiene, and balanced diets.

Keywords: Malnutrition; Pediatrics; Nutritional status; Mid-upper arm circumference; Pakistan.

Abstracts in [عربی](#), [اردو](#), [française](#), [русский](#) and [español](#) at the end of the article.

Layman Summary

This study shows that poor food, restricted vaccines, and inadequate treatment left 33% of Umerkot, Pakistan, hospitalised children malnourished. Almost 8.1% of them were very malnourished, especially rural children and measles patients. Their cereal-heavy diet lacked minerals, causing growth and development hinderance. Community efforts should promote growth monitoring, breastfeeding, diverse diet, cleanliness, and appropriate vaccines, while hospital based nutrition programmes require urgent improvement. This situation requires collaboration between healthcare, agriculture, and education to protect child health.

Introduction

Malnutrition in Hospitalized Children: A Public Health Priority

Deficits in calories, protein, or micronutrients may cause malnutrition, which can cause morbidity [1]. The World Health Organization (WHO) states that the primary factor contributing to the burden of illness worldwide is malnutrition. 150.8 million children under five stunted or waste as a result of iron, vitamin A, zinc, iodine, and folate deficits in their diets, and over 45% suffer from malnutrition [2]. Almost 75 percent of children under five who live in poverty are in the developing world [3].

Malnutrition has a major role in causing sickness and death in children under the age of five in low- and middle-income countries that are impacted by ongoing poverty, limited food availability, and insufficient public health systems [4,5]. Malnutrition may have long-lasting adverse consequences on social, cognitive, and motor abilities, as well as on physical growth and development [6]. Malnutrition leads to immunological damage, increasing an individual's vulnerability to infectious infections. This further worsens undernutrition and establishes a hazardous feedback process [7]. Hospitalization is a crucial chance to detect and tackle malnutrition, particularly in severe instances with a high probability of adverse consequences, since it often serves as the first encounter between vulnerable children and healthcare professionals. The importance of the nutritional health of pediatric children brought to the hospital is occasionally disregarded owing to the prioritization of acute medical needs, despite its relevance [8]. An international research investigating children who were sent to hospitals has shown a significant occurrence of malnutrition, with incidence ranging from 10% to 50% in countries like Romania, India, and Iran [9-11]. The rates observed in this research exhibit a larger magnitude when compared to those seen in the whole population. This suggests that in resource-constrained environments, hunger has a substantial role as both a primary cause and a result of children's diseases requiring hospitalization [8].

According to the National Nutrition Survey (NNS) 2018, which provides insight into Pakistan's continuous battle against hunger and food insecurity, malnutrition continues to be prevalent across the nation. The prevalence of this condition is seen in 18% of children experiencing wasting or acute undernutrition, and a worrisome 40% of children under the age of 5 suffering from stunting or chronic malnutrition [12]. Although regional studies have shown malnutrition rates ranging from 27 to 54% in this susceptible population, there is now little data about the nutritional condition of hospitalized children [13-15].

Umerkot Context

The desert region of Umerkot in the southeastern province of Sindh is at the center of Pakistan's persistent malnutrition issue, with more than half of rural households experiencing food insecurity [16]. The prevalence of malnutrition in the local area is worsened by factors such as limited water supply, agricultural setbacks, financial hardship within families, natural disasters including floods and droughts, and problems with the healthcare system [17]. Umerkot, despite its well-documented vulnerability to nutritional deficiencies, lacks comprehensive data at the district level, especially for women and children.

Rationale and Objectives

Our research aims to assess the frequency and variables related with malnutrition among pediatric inpatients in the District Headquarter Hospital (DHQ) Umerkot, which serves rural agricultural populations that are nutritionally vulnerable and lack local evidence. The results of our study highlight the significance of integrating nutritional assessment and treatment into pediatric healthcare, particularly for this vulnerable population that has hitherto been neglected in terms of malnutrition. Through a comprehensive examination of demographic and clinical variables, we may more accurately identify people who are susceptible to malnutrition and need targeted therapies.

Methods and materials

Study design and setting

We did a quantitative cross-sectional research by enrolling children who were hospitalized to the male and female pediatric wards at District Headquarter Hospital, Umerkot for a duration of 15 days in March 2022. DHQ Umerkot is a medical facility with a capacity of 200 beds that provides secondary level healthcare services. It is operated by a team of more than 100 healthcare professionals, including specialists, general doctors, nurses, paramedics, and health management personnel. The facility serves as a recipient of referrals from nearby primary health centers and basic health units, providing healthcare services to a population of 1.2 million individuals residing in both urban and rural areas of Umerkot. The hospital provides subsidized inpatient and outpatient treatments at minimum fees, including laboratory tests, medications, and bed accommodations.

Data collection

The demographic and clinical data of the children who were recruited in the study were collected from their parents or guardians, after the acquisition of informed permission. The age of the patients, measured in months, was confirmed using hospital records. The patients were then divided into two subgroups: those aged between 6 and 24 months, and those aged above 24 months. Additionally, data on gender and place of residence were recorded. Afterwards, a team of qualified physicians and nurses took anthropometric measurements using standardized calibrated devices and following WHO criteria to reduce technical variability in results [18]. The child's weight was measured with precision to the closest 0.1kg, while they were totally nude. This was done using a portable digital weighing scale, which underwent daily accuracy checks. Measurements of recumbent length were taken for children under 2 years of age, while standing height measurements were collected for those above 24 months. The measurements were rounded to the closest 0.1 cm using standard length/height boards. The mid upper arm circumference (MUAC) was measured using non-elastic MUAC tapes graded to the nearest 0.1 cm. The measurement was taken at the midpoint between the tip of the shoulder and the tip of the elbow of the left arm. MUAC is a quick and sensitive anthropometric marker for assessing wasting. The occurrence of technical mistakes was reduced with the implementation of intensive standardized training for field teams on anthropometry methods. Anthropometric measurements were used to calculate age-specific z scores and percentiles, which were then used to assess nutritional status according to WHO growth criteria. This analysis was conducted using Anthro software [19].

Operational Definitions

As to the World Health Organization (WHO), a child is considered stunted if their height for age z score is more than 2 standard deviations below the median score of the reference population. Wasting, on the other hand, is determined by weight for height/length z scores that are below -2 standard deviations. Underweight refers to a condition of overall development failure, as measured by weight for age z scores below -2 standard deviations [18]. We used mid upper arm circumference (MUAC) thresholds to categorize wasting, which is the primary anthropometric criteria for diagnosing severe acute malnutrition as per WHO standards [18,20]. MUAC functions as an autonomous predictor of mortality that is not influenced by hydration state. It has a high level of sensitivity and specificity for the purpose of nutrition screening [20]. The research found that a mid-upper arm circumference (MUAC) measurement between 115 to 125mm indicated mild acute malnutrition, whereas a MUAC measurement below 115mm indicated severe wasting [18]. The documented patient parameters included main diagnosis, immunization history, food consumption frequency, and anthropometric measurements.

Statistical Analysis

Sample Size Estimation

Based on regional literature [13], we calculated a sample size of 303 children, assuming a 27% predicted prevalence of malnutrition among hospitalized children. This estimation was made with a 5% margin of error and a 95% confidence range. The final sample consisted of 298 respondents who were recruited using a non-probability sequential sampling method. The enrollment process continued until the goal sample size was attained during the specified 15-day research period. Only instances that had full data, with no missing variables, were included for analysis.

Data Analysis

The data were analyzed using SPSS version 22.0. Numerical variables such as age, weight, and MUAC were subjected to descriptive analysis, which included calculating means and standard deviations. The categorical data, such as gender, residence, and diagnosis, were represented using frequencies and percentages. The cohort was assessed to evaluate the prevalence of malnutrition, including general, moderate, and severe cases. Stratification analysis was conducted to compare the prevalence of malnutrition among different subgroups, including gender, location, age distribution, and other characteristics. The study also included data on important anthropometric variables such as stunting, wasting, underweight, and MUAC categorization rates. The study examined possible variables linked with the incidence of malnutrition, such as immunization status, type of diagnosis, and sufficiency of nutritional intake. A chi-square test was used to assess these factors and determine the p-values, which indicate the importance of the associations. A p value less than 0.05 was deemed to be statistically significant.

Ethical Considerations

Formal ethical approval was obtained from the Institutional Review Board of Shaheed Zulfikar Ali Bhutto Institute of Science and Technology (SZABIST) University. Individual informed consent for enrollment and anthropometric examination was sought from children's parents after explaining the study rationale and protocol and assuring standard confidentiality safeguards for participants' information. Identifiers were removed during analysis and subjects could voluntarily opt out during data gathering to prevent coercion. Risks of anthropometry were minimal but techniques were conducted cautiously under close staff supervision to prevent harm. Therapeutic counseling and nutrition advice were provided to all families by a medical officer at hospital discharge with referral follow up for at risk cases to ensure duty of care obligations were fulfilled ethically.

Results

Analysis was conducted for 298 under 5 children hospitalized during the study duration with mean age 19.4±15.2 months including 184 (61.7%) males and 114 females (38.3%). Majority participants 148 (49.7%) were aged between 6 to 24 months followed by 103 (35%) in 24-60 months bracket and 47 (15.8%) under 6 months. In terms of residential distribution, 197 (66.1%) cases were from rural locales around Umerkot while 101 (33.9%) lived within the city.

Primary Diagnosis of Participants

The predominant illnesses responsible for pediatric admissions encompassed infectious exanthemas and respiratory disorders (Table 1). Measles constituted the singular most common reason for hospitalization among 56 children (18.8%) followed by pneumonia affecting 52 (17.4%) and diarrhea with 47 cases (15.8%). Acute respiratory infections inclusive of upper respiratory tract infections (URTI), bronchopneumonia and bronchiolitis collectively accounted for 38 (12.8%) subjects. A significant fraction of patients was admitted with fever or acute undifferentiated febrile illness (79 cases, 26.5%) without clear localized organ pathology. These could be attributed to underlying nutritional deficiencies reflecting impaired host immunity as malnourished children often present with non-specific symptoms [21]. Among other diagnoses, reduced oral acceptance and

dehydration comprised reasons for hospitalization in 15 cases reinforcing interlink of anorexia, starvation and malnutrition. In total, infectious diseases contributed to 59.1% pediatric admissions indicating the heavy burden of communicable childhood maladies in the region.

Anthropometric Analysis

According to MUAC cut offs, one third (103,34.6%) of enrolled hospitalized children suffered from some degree of malnutrition including moderate malnutrition affecting 26.5%(79) and severe malnutrition in 8.1%(24). Comparatively stunting was discerned in 71 out of 298 participants (23.8%) while wasting or low weight for length/height manifested in 14%(42) per WHO z score thresholds [18]. Underweight prevalence was strikingly high affecting one quarter children (29.5%) highlighting the region's persistent undernutrition preventing children from attaining their growth potential and predisposing them to recurrent infections [7]. The mean (SD) MUAC and weight of the cohort was 12.8±1.6 cm and 7.25±2.32kg respectively (Table 2).

Factors Underpinning Malnutrition Burden

Immunization gaps reflected through lack of standard age-appropriate vaccination were associated with significantly greater malnutrition ($p<0.001$) as all 37(8.7%) children unimmunized or partially vaccinated demonstrated anthropometric deficits (Table 3). This could be mediated via vaccine preventable disease acquisition and underscored stronger integration between immunization and nutritional services as a key strategy for lowering pediatric hospitalizations for maladies like measles, diarrhea and pneumonia which constituted majority cases [22]. Dietary inadequacies also correlated strongly with malnutrition indicators ($p<0.05$) as demonstrated through higher consumption of cereal/flour-based items and low dairy intake among affected children. Monotonous plant-based diets devoid of milk products and animal protein coupled with household financial constraints limiting dietary diversity sustain the vicious cycle of malabsorption, micronutrient deficiencies and growth faltering [23].

Malnutrition rates were highest in children aged 6-24 months (43.2%) consistent with international and regional trends [4,12]. Critical growth phases place this age segment at particular risk of nutritional insufficiency especially when combined with childhood infections during weaning periods while transitioning from exclusive breastfeeding to solid meals. Measles diagnosis ($p<0.001$) and rural domicile (39%) also conferred significantly higher likelihood of malnutrition versus children from urban Umerkot (25.4%) as rural environments pose additional barriers to healthcare access and maintaining optimal child health [24].

Discussion

Key Findings

This study aimed to assess the neglected burden and determinants of malnutrition exclusively among young pediatric inpatients at a district hospital in Pakistan's nutritional hotspot district of Umerkot. Our analysis detected an alarmingly high malnutrition prevalence of 34.6% afflicting over a third children aged under 5 years needing hospitalization which exceeded general population rates [12]. Comparable studies from India, Iran and other developing countries have reported analogous malnutrition estimates from 27% to above 50% in this cohort indicating the scale of this public health crisis confronting hospitalized children especially those requiring treatment for infectious illnesses like measles, diarrhea and respiratory conditions [9-11,13-15]. Our results also align with nationwide data from Nutrition Survey 2018 which spotlighted emergency thresholds of acute malnutrition manifested through wasting (low weight for height) among 17% children while stunting or chronic malnutrition affected 40% under 5 years reflecting a major policy and programming failure [12]. This study's findings contextualize the pediatric ward perspective thus providing ground truthing for policy amendments tailored to the needs of young patients.

Table 1. Primary admitting diagnosis of participants

Diagnosis	Number (n=298)	Percentage
Measles	56	18.8%
Pneumonia	52	17.4%
Diarrhea	47	15.8%
Acute respiratory infections	38	12.8%
Fever/undifferentiated febrile illness	79	26.5%
Reduced acceptance/dehydration oral	15	5.0%
Other	11	3.7%

Table 2. Nutritional profile and frequency of undernutrition

Parameter	Mean ± SD or n (%)
Mid-upper arm circumference (cm)	12.8 ± 1.6
Weight (kg)	7.25 ± 2.32
Moderate acute malnutrition	79(26.5%)
Stunting	71(23.8%)
Wasting	42(14.0%)
Underweight	88(29.5%)

Table 3. Factors Associated with Malnutrition Among Participants

Variable	Malnutrition	No Malnutrition	p-value
Immunization Status			
Fully Immunized	66 (31.1%)	195 (74.8%)	<0.001
Partially/Unimmunized	37 (100%)	0 (0%)	
Diagnosis			
Measles	41 (73.2%)	15 (26.8%)	<0.001
Other Diagnoses	62 (27.1%)	180 (72.9%)	
Age Group			
6-24 months	64 (43.2%)	84 (56.8%)	0.012
24 months	39 (27.5%)	111 (72.5%)	

Modifiable Factors and Targeted Solutions

A multidimensional etiology underlies childhood malnutrition encompassing interconnected biological and social determinants which require integrated solutions [25]. Our analysis identified harmful triad of suboptimal infant and young child feeding, vaccine preventable disease acquisition and household food insecurity as major drivers of undernutrition among hospitalized subjects. Multiple lines of evidence have established lack of dietary diversity, low meal frequency and poor maternal care during the first years after birth as pivotal threats for malnutrition in Pakistan and other South Asian countries [4,26]. Locally high consumption of starch rich staple cereals like wheat rather than vitamin and protein dense meat, eggs, dairy and fruits hamper development. Public health and nutrition programs must prioritize promotion of minimum dietary diversity and micronutrient supplementation plus scaling up skilled breastfeeding counseling including techniques like kangaroo care during neonatal admissions. Recently, Pakistan became the first nation globally to include essential micronutrient powders like Sprinkles in its essential medicines list which holds high promise to tackle hidden hunger if such evidence-based measures can be operationalized for vulnerable pediatric groups [27].

Infections especially measles and pneumonia constituted major reasons for hospitalization besides aggravating malnutrition by increasing metabolic demands and reducing appetite through cytokines [28]. Our analysis determined that children lacking complete vaccination course for age had greatest odds for malnutrition. Routine childhood vaccination helps prevent common killers like measles, diarrhea from rotavirus and other pathogens protecting children against catabolic stresses thus minimizing nutrition loss during illness while also reducing related mortality [29]. Closing immunization gaps through improved community outreach, reducing vaccine hesitancy by building caregiver awareness and maintaining optimal cold chain and logistics would pay rich nutritional dividends especially for impoverished rural communities lacking alternative healthcare access.

Wider health systems strengthening for child health and survival also warrants integrated management of acute malnutrition guidelines for facility and community-based interventions [30]. Nutrition workforce capacities must be augmented via in-service training of physicians and staff nurses on anthropometric assessment, metabolic and micronutrient deficiencies, rehabilitative best practices and discharge pathways with follow up. A recent Pakistan Lancet Commission has recommended cost-effective measures like procurement of mid upper arm circumference tapes for nutrition screening, equipping hospitals with ready to use therapeutic foods alongside low cost local products like chickpea sesame-based pastes to stabilize severely wasted children [31]. Resourcing pediatric wards with guidelines, job aids and essential diagnostics like glucometers and point of care testing for hemoglobin, zinc and vitamin D also need urgent action [32].

Our research indicates the highest malnutrition prevalence in children under 24 months highlighting the crucial window of complementary feeding, treatable deficiencies and repeating infections needing nuanced solutions like community management of acute malnutrition through lady health workers and measures encouraging dietary diversity [33]. Iron, zinc and vitamin A shortfalls are prevalent in this age bracket stunting physical growth and immunity which can be redressed through supplementation, food fortification and behavioral change communication promoting animal source protein consumption [34]. Engaging private sector food manufacturers to incentivize production of energy dense, affordable, micronutrient fortified lipid based nutrient supplements can also assist families to counter malnutrition [35]. Pakistan's Benazir Income Support Cash Transfer program has demonstrated value in alleviating household poverty and enhancing child centered spending which could be further mobilized during hospitalization of an undernourished family member [36].

Analyzing rural and urban differentials indicated significantly higher morbidity among the former which bear the greatest force of socioeconomic deprivation. Rural malnutrition correlates like anemia, open defecation, unimproved water access and geographical barriers to healthcare utilization require systemic action across agriculture, infrastructure and public health domains [24]. Climate smart models enhancing resilience, consumptive advisories to boost crop and dietary diversity using indigenous cultivars while reviving small land holding capacity can tackle the nexus of rural food insecurity and undernutrition [37]. Drought tolerant biofortified orange maize, iron rich millet and zinc dense wheat germplasm adoption needs policy incentives to uplift nutritional immunity among agrarian communities [38].

Conclusion and Recommendations

In the malnutrition hotspot context of Umerkot, over one third hospitalized children suffered from acute undernutrition besides stunting, wasting and underweight prevalence transcending population averages. Key factors responsible encompassed vaccine preventable illnesses like measles, suboptimal breastfeeding and weaning practices, household poverty and food insecurity while rural locales faced particular nutritional jeopardy.

Our findings underscore the urgency of political commitment and health system reforms to tackle pediatric malnutrition as an indispensable component of child health strategies like the Integrated Management of Neonatal and Childhood Illness (IMNCI). Concrete policy measures should encompass nutritional surveillance including anthropometric monitoring of hospital admissions, capacity building of healthcare staff on inpatient rehabilitation guidelines and community engagement for preventative education and poverty alleviation initiatives prioritizing maternal and child wellbeing [39]. With the advent of democracy and legislation like National Health Vision 2016-2025 which pledges adequate investment in MNCH indicators as a fundamental human right, Pakistan has fresh impetus to transform

nutrition governance [40]. This mandates harmonization across multisectoral initiatives like National Nutrition Survey, National Fortification Alliance, breastfeeding protection laws and Agriculture Climate Change policy to guarantee sustainable food systems securing the country's future human capital [41]. Global precedents like Peru, Senegal and Nepal which confronted malnutrition through national priorities lens applying equity and quality principles for all citizens offers valuable lessons for replication [42].

Realizing the proverb prevention is better than cure, community-based models require roll out to alleviate hospital burden including Integrated Community Case Management of childhood infections by frontline workers, behavior change modules and using schools as platforms for deworming, menstrual health, WASH and dietary diversity awareness besides anemia screening [43,44]. Gender and social inclusion perspectives should explicitly inform all programming to mitigate bias against young girls, differently abled children and minorities. Moving beyond lofty commitments entails grounding in results-based accountability frameworks with localized data guiding annual sectoral plans like the Multi-Sectoral Nutrition Strategy [45]. Operational research on practical barriers around continuity of care, referral compliance and patient navigation can pave the path for context adapted solutions. With malnutrition claiming nearly 45% under 5 lives annually, Pakistan is racing against time to arrest nutritional deficiencies capping human potential through smart, child sensitive interventions prioritizing those farthest behind like hospitalized, rural and impoverished children to unlock a healthier, prosperous future.

Research Limitations and Future Directions

Despite robust findings, our analysis encompassed certain limitations notably its cross-sectional quantitative design employing non-probability sampling from a single health facility that constrains generalizability. The relatively short duration was unable to capture seasonal malnutrition trends. Causal inferences are also restricted without multivariate analysis controlling confounders like socioeconomic stratifiers, maternal factors and water/sanitation variables. Social desirability bias may affect self-reported dietary recalls while the study omitted biochemical testing for micronutrient status. We recommend further analytical probes through mixed methods data triangulation across multiple facilities and rural/urban typologies generating nationally representative data on context specific malnutrition determinants.

Child health remains the ultimate barometer of sustainable human development, thus Bronfenbrenner's social ecological model underlining interlink roles of caregivers, communities, government and wider milieu offers a useful heuristic framework [15]. Embedded research co-creating solutions with families, frontline workers and policymakers can unpack complex pathways underpinning hospitalized malnutrition besides catalyzing commitment for alleviative resource allocation when the invisible become visible. Pakistan's nutritional future now hinges on crafting context adapted models prioritizing vulnerable communities using local partnerships, knowledge sharing and data driven iteration.

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Author Contributions

Conceptualization: Vistro JM

Data curation: Vistro JM and Mughal HS

Formal analysis: Vistro JM

Writing — original draft: Vistro JM

Writing — review & editing: Vistro JM and Mughal HS

خلفية

في منطقة أوميركوت في باكستان، حيث ينتشر سوء التغذية، اكتشف مستشفى محلي أن ثلث الأطفال الذين يعالجون في المستشفى يعانون من سوء التغذية. كان الغرض من هذا البحث هو التعرف على مدى انتشار سوء التغذية وما يرتبط به من حالات بين الأطفال المرضى داخل المستشفى.

الطرق

تم إجراء بحث مقطعي على 298 طفلاً تم إدخالهم إلى المستشفى الرئيسي للمنطقة في أوميركوت وتراوحت أعمارهم بين 06 أشهر إلى 05 سنوات. ومن أجل تحديد سوء التغذية وفقاً للمبادئ التوجيهية لمنظمة الصحة العالمية، تم اتخاذ تدابير القياسات البشرية مثل محيط منتصف العضد (MUAC). تم توثيق التشخيص السريري وتاريخ التحصين وتناول الطعام.

النتائج

بلغ معدل انتشار سوء التغذية 34.6%، مع الحالات المتوسطة (26.5%) والحالات الشديدة (8.1%). أما عند الأطفال فقد أصاب نقص الوزن 29.5%، وكانت التشخيصات الشائعة أثناء القبول هي الحصبة (18.8%) والالتهاب الرئوي (17.4%) والإسهال (15.8%). وارتبط سوء التغذية بشكل كبير مع عدم كفاية تناول الطعام ومعدل التطعيم غير المناسب للعمر بنسبة 8.7%، وهو ما يتفق مع نتائج البحوث السابقة.

الاستنتاجات

من أجل معالجة الانتشار المرتفع لسوء التغذية لدى المرضى الداخليين، يجب أن تتضمن رعاية الأطفال معايير لتقييم التغذية والعلاج بالإضافة إلى تنمية القدرات. في المجتمعات المحلية، من المهم أيضاً إجراء مراقبة روتينية للنمو وتعزيز التحصين والنظافة الصحية المناسبة والوجبات الغذائية المتوازنة.

الكلمات الرئيسية

سوء التغذية؛ طب الأطفال؛ الحالة التغذوية محيط منتصف العضد؛ باكستان

خلاصة

پس منظر

پاکستان کے عمرکوٹ علاقے میں، جہاں غذائی قلت عام ہے، ایک مقامی ہسپتال میں تحقیق سے معلوم ہوا کہ ہسپتال میں داخل بچوں میں سے ایک تہائی غذائی قلت کا شکار تھے۔ اس تحقیق کا مقصد ہسپتال میں داخل بچوں میں غذائیت کی کمی اور اس سے منسلک عوامل کی معلومات کرنا تھا۔

طریقہ

ڈسٹرکٹ عمر کوٹ کے بیڈ کوارٹر ہسپتال میں داخل ہونے والے 298 بچوں (جن کی عمریں 06 ماہ سے 05 سال کے درمیان تھیں) پر ایک کراس سیکشنل تحقیق کی گئی۔ ڈبلیو ایچ او کے رہنما خطوط کے مطابق غذائیت کی کمی کا تعین کرنے کے لیے، اینتھروپومیٹری کے اقدامات یعنی وسط اوپری بازو کی پیمائش (MUAC) لیا گیا۔ طبی تشخیص، حفاظتی ٹیکوں کی تاریخ، اور خوراک کی مقدار کی معلومات بھی حاصل کی گئی۔

نتائج

غذائی قلت کا پھیلاؤ 34.6% تھا، جس میں اعتدال پسند (26.5%) اور شدید (8.1%) کیسز شامل تھے۔ بچوں میں، کم وزن کا شکار 29.5% داخلے کے دوران عام تشخیص خسره (18.8%)، نمونیا (17.4%) اور اسہال (15.8%) تھیں۔ غذائیت کی کمی کو خوراک کی ناکافی مقدار اور عمر کے لحاظ سے نامناسب ویکسینیشن کی شرح 8.7 فیصد کے ساتھ نمایاں طور پر منسلک کیا گیا تھا، جو پچھلے تحقیقی نتائج سے متفق ہے۔

حاصلات

داخل مریض بچوں میں غذائی قلت کے انتہائی پھیلاؤ کو روکنے کیلئے، بچوں کی دیکھ بھال میں غذائیت کی تشخیص اور مقامی حلقوں میں علاج کے ساتھ ساتھ صلاحیت کی نشوونما کے معیارات کو شامل کرنا چاہیے۔ معمول کی نشوونما کی نگرانی کرنا اور حفاظتی ٹیکوں، مناسب حفظان صحت اور متوازن غذا کو فروغ دینا بھی اہم ہے۔

اہم الفاظ

غذائیت کی کمی اطفال؛ غذائیت کی حیثیت؛ درمیانی اوپری بازو کی پیمائش؛ پاکستان

抽象的

背景

在营养不良现象普遍的巴基斯坦乌梅尔科特地区，当地一家医院发现，三分之一的住院儿童营养不良。本研究目的是确定儿科住院患者营养不良的患病率及其相关性。

方法

对乌梅尔科特地区总部医院住院的 298 名年龄在 6 个月至 5 岁的儿童进行了横断面研究。为了根据世界卫生组织的指导方针确定营养不良，采取了中上臂围 (MUAC) 等人体测量措施。记录临床诊断、免疫史和食物摄入量。

结果

营养不良患病率为 34.6%，其中中度营养不良 (26.5%) 和重度营养不良 (8.1%)。在儿童中，体重不足的比例为 29.5%。入院时常见的诊断为麻疹 (18.8%)、肺炎 (17.4%) 和腹泻 (15.8%)。营养不良与食物摄入不足显著相关，且与年龄不相称的疫苗接种率为 8.7%，这与之前的研究结果一致。

结论

为了解决住院患者营养不良患病率极高的问题，儿科护理必须包括营养评估和治疗以及能力发展的标准。在当地社区，进行常规生长监测并促进免疫、适当的卫生和均衡饮食也至关重要。

关键词

营养不良；儿科；营养状况；中上臂围；巴基斯坦。

Abstract

Arrière-plan

Dans la région d'Umerkot au Pakistan, où la malnutrition est courante, un hôpital local a découvert qu'un tiers des enfants hospitalisés souffraient de malnutrition. Le but de cette recherche était d'identifier la prévalence de la malnutrition et ses conséquences chez les patients pédiatriques hospitalisés.

Méthodes

Une recherche transversale a été menée sur 298 enfants hospitalisés à l'hôpital du quartier général du district d'Umerkot et âgés de 06 mois à 05 ans. Afin de déterminer la malnutrition conformément aux directives de l'OMS, des mesures anthropométriques telles que la circonférence mi-brassière (MUAC) ont été prises. Le diagnostic clinique, les antécédents vaccinaux et la prise alimentaire ont été documentés.

Résultats

La prévalence de la malnutrition était de 34,6%, avec des cas modérés (26,5%) et sévères (8,1%). Chez les enfants, l'insuffisance pondérale concernait 29,5 % des enfants. Les diagnostics courants lors de l'admission étaient la rougeole (18,8 %), la pneumonie (17,4 %) et la diarrhée (15,8 %). La malnutrition était significativement corrélée à un apport alimentaire inadéquat et à un taux de vaccination inapproprié à l'âge de 8,7%, ce qui est en accord avec les résultats de recherches antérieures.

Conclusions

Afin de répondre à la prévalence extrêmement élevée de la malnutrition chez les patients hospitalisés, les soins pédiatriques doivent inclure des normes d'évaluation et de traitement nutritionnels ainsi que le développement des capacités. Dans les communautés locales, il est également essentiel de surveiller régulièrement la croissance et de promouvoir la vaccination, une bonne hygiène et une alimentation équilibrée.

Mots clés

Malnutrition ; Pédiatrie; L'état nutritionnel; Circonférence du milieu du bras ; Pakistan.

Абстрактный

Фон

В районе Умеркот в Пакистане, где недоедание является обычным явлением, местная больница обнаружила, что одна треть госпитализированных детей недоедает. Целью данного исследования было выявить распространенность недостаточности питания и связанных с ней заболеваний среди педиатрических стационарных пациентов.

Методы

поперечное исследование было проведено на 298 детях, госпитализированных в районную центральную больницу в Умеркоте, в возрасте от 06 месяцев до 05 лет. Чтобы определить недостаточность питания в соответствии с рекомендациями ВОЗ, были проведены антропометрические измерения, такие как окружность середины плеча (МУАС). Клинический диагноз, история иммунизации и прием пищи документировались.

Полученные результаты

Распространенность недостаточности питания составила 34,6%, включая умеренные (26,5%) и тяжелые (8,1%) случаи. У детей недостаточный вес наблюдался у 29,5%. Распространенными диагнозами при поступлении были корь (18,8%), пневмония (17,4%) и диарея (15,8%). Недоедание в значительной степени коррелировало с недостаточным потреблением пищи и уровнем вакцинации, не соответствующим возрасту, составившим 8,7%, что согласуется с результатами предыдущих исследований.

Выводы

Чтобы решить проблему критически высокой распространенности недостаточности питания в стационарах, педиатрическая помощь должна включать стандарты оценки питания и лечения, а также развития потенциала. В местных сообществах также крайне важно проводить регулярный мониторинг роста и пропагандировать иммунизацию, надлежащую гигиену и сбалансированное питание.

Ключевые слова

Недоедание; Педиатрия; Пищевой статус; окружность середины плеча; Пакистан.

Abstracto

Fondo

En la zona de Umerkot en Pakistán, donde la desnutrición es común, un hospital local descubrió que un tercio de los niños hospitalizados estaban desnutridos. El propósito de esta investigación fue identificar la prevalencia de desnutrición y sus asociadas entre pacientes pediátricos hospitalizados.

Métodos

Se llevó a cabo una investigación transversal en 298 niños que fueron hospitalizados en el Hospital Central del Distrito en Umerkot y tenían edades comprendidas entre 06 meses y 05 años. Para determinar la desnutrición de acuerdo con las directrices de la OMS, se tomaron medidas antropométricas como la circunferencia media del brazo (MUAC). Se documentó el diagnóstico clínico, el historial de vacunación y la ingesta de alimentos.

Resultados

La prevalencia de desnutrición fue del 34,6%, incluyéndose casos moderados (26,5%) y graves (8,1%). En los niños, el bajo peso afectó al 29,5%. Los diagnósticos frecuentes durante el ingreso fueron sarampión (18,8%), neumonía (17,4%) y diarrea (15,8%). La desnutrición se correlacionó significativamente con una ingesta inadecuada de alimentos y una tasa de vacunación inadecuada para la edad del 8,7%, lo que concuerda con resultados de investigaciones anteriores.

Conclusiones

Para abordar la prevalencia críticamente alta de desnutrición en pacientes hospitalizados, la atención pediátrica debe incluir estándares para la evaluación y el tratamiento nutricionales, así como el desarrollo de capacidades. En las comunidades locales, también es fundamental realizar un seguimiento rutinario del crecimiento y promover la inmunización, una higiene adecuada y una dieta equilibrada.

Palabras clave

Desnutrición; Pediatría; Estados nutricionales; Circunferencia del brazo medio superior; Pakistán.

References

- Cederholm T, Barazzoni R, Austin P, et al. ESPEN guidelines on definitions and terminology of clinical nutrition. *Clin Nutr.* 2017;36(1):49-64. <https://doi.org/10.1016/j.clnu.2016.09.004>.
- World Health Organization. Malnutrition. WHO. Accessed Feb 5, 2023. <https://www.who.int/news-room/facts-in-pictures/detail/nutrition>
- UNICEF, WHO, World Bank Group. (2021). Levels and trends in child malnutrition: UNICEF / WHO / World Bank Group joint child malnutrition estimates: Key findings of the 2021 edition. Geneva: World Health Organization.
- Olofin I, McDonald CM, Ezzati M, Flaxman S, Black RE, Fawzi WW, et al. Associations of suboptimal growth with all-cause and cause-specific mortality in children under five years: a pooled analysis of ten prospective studies. *PLoS One.* 2013;8(5):e64636. <https://doi.org/10.1371/journal.pone.0064636>.
- Black RE, Victora CG, Walker SP, Bhutta ZA, Christian P, de Onis M, et al. Maternal and child undernutrition and overweight in low-income and middle-income countries. *Lancet.* 2013 Aug;382(9890):427-51.
- Sudfeld CR, McCoy DC, Danaei G, Fink G, Ezzati M, Andrews KG, Fawzi WW. Linear growth and child development in low- and middle-income countries: a meta-analysis. *Pediatrics.* 2015;135(5):e1266-75. <https://doi.org/10.1542/peds.2014-3111>.
- Rytter MJH, Kolte L, Briend A, Friis H, Christensen VB (2014) The Immune System in Children with Malnutrition—A Systematic Review. *PLoS ONE* 9(8): e105017. <https://doi.org/10.1371/journal.pone.0105017>.
- Huysentruyt K, Alliet P, Muysshont L, Devreker T, Bontems P, Vandenplas Y. Hospital-related undernutrition in children: still an often unrecognized and undertreated problem. *Acta Paediatr.* 2013;102(12):e460-e466. <https://doi.org/10.1111/apa.12344>.
- McCarthy A, Delvin E, Marcil V, Belanger V, Marchand V, Boctor D, et al. Prevalence of Malnutrition in Pediatric Hospitals in Developed and In-Transition Countries: The Impact of Hospital Practices. *Nutrients.* 2019;11(2):236. <https://doi.org/10.3390/n11020236>.
- Imanzadeh F, Olang B, Forughifar E, Ilkhani M. Assessing the prevalence and treatment of malnutrition in hospitalized children in Mofid Children's Hospital during 2015-2016. *Archives of Iranian Medicine (AIM).* 2018 Jul 1;21(7):302-9. <https://doi.org/10.3305/nh.2012.27.5.5875>
- Parida J, Jena Samanta L, Badamali J, Singh PK, Patra PK, Mishra BK, Pati S, Kaur H, Acharya SK. Prevalence and determinants of undernutrition among adolescents in India: A protocol for systematic review and meta-analysis. *PLoS One.* 2022;17(1):e0263032. <https://doi.org/10.1371/journal.pone.0263032>.
- UNICEF. National Nutrition Survey 2018 - Key Findings Report [Internet]. Islamabad, Pakistan: UNICEF; 2019 Nov p. 18. Available from: <https://www.unicef.org/pakistan/reports/national-nutrition-survey-2018-key-findings-report>.
- Nisar MI, Ilyas M, Naeem K, Fatima U. Cause of death in under 5 children in a demographic surveillance site in Pakistan. *Online J Public Health Inform [Internet].* 2017 May 2 [cited 2023 Feb 5];9(1). doi: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5462324/>
- Parida J, Jena Samanta L, Badamali J, Singh PK, Patra PK, Mishra BK, et al. (2022) Prevalence and determinants of undernutrition among adolescents in India: A protocol for systematic review and meta-analysis. *PLoS ONE* 17(1): e0263032. <https://doi.org/10.1371/journal.pone.0263032>.
- Gamal Y, Mahmoud AO, Mohamed SAA, Mohamed IJ, Raheem YFA. Prevalence and impact of malnutrition on outcomes and mortality of under-five years children with pneumonia: a study from Upper Egypt. *Eur J Pediatr.* 2023;182(10):4583-93. doi: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10587326/>
- Fenn B, Morris SS, Frost C. Do childhood growth indicators in developing countries cluster? Implications for intervention strategies. *Public Health Nutr.* 2004 Oct;7(7):829-34. doi: <https://doi.org/10.1079/phn2004632>.
- Kamal M, Fatima A (2023) Structural transformation and political economy: A new approach to inclusive growth. *PLoS ONE* 18(8): e0283731. <https://doi.org/10.1371/journal.pone.0283731>.
- World Health Organization. Training Course on Child Growth Assessment WHO Child Growth Standards [Internet]. Geneva: World Health Organization; 2008 [cited 2023 Feb 5]. Available from: <https://www.who.int/publications/i/item/9789241547185>

Key messages

- This study provides quantitative data on alarming prevalence (87.9%) of violence against medical staff in Karachi Pakistan.
- Our study reveals severe impacts on provider health, absenteeism, turnover, and patient care quality.
- The study highlights lack of law enforcement and poor hospital security as key issues fueling crisis.
- The evidence from our study calls for urgent legal reforms, enhanced security measures, de-escalation training, community engagement, and oversight to tackle escalating violence.

The study adds significantly to limited evidence on workplace violence against healthcare workers in developing countries.

19. WHO Anthro (version 3.2.2, January 2011) - Software for assessing growth and development of the world's children [Internet]. Geneva: WHO; 2011 [cited 2023 Feb 5]. Available from: <https://www.who.int/publications/i/item/9789241548327>.
20. Mogeni P, Twahir H, Bandika V, Mwalekwa L, Thitiri J, Ngari M, et al. Diagnostic performance of visible severe wasting for identifying severe acute malnutrition in children admitted to hospital in Kenya. *Bull World Health Organ*. 2011 Oct 11;89:900-6.
21. Tickell KD, Atlas HE, Walson JL. Nutritional Deficiencies in Children Admitted with Lower Respiratory Tract Infections in Low Resource Settings - A Systematic Review and Meta-Analysis. *PLoS One* [Internet]. 2016 [cited 2023 Feb 5];11(10). Available from: <https://pubmed.ncbi.nlm.nih.gov/27701423/>
22. Sudfeld CR, Narayan A, Restrepo-Méndez MC. Children vaccinated against measles have better growth than unvaccinated children in low- and middle-income countries. *Vaccine*. 2021 Feb 10;39(7):1163-70.
23. Headey D. The evolution of global nutrition governance: Lessons for integrating nutrition in sustainable development goals implementation. *Global Food Security*. 2021 Mar;28:100501.
24. Mahadevan S, Hoey J. Underreporting child malnutrition in rural India: trends, determinants and impacts on health programs. *Int J Environ Res Public Health* [Internet]. 2022 Jul 10 [cited 2023 Feb 5];19(14). Available from: <https://pubmed.ncbi.nlm.nih.gov/35883103/>.
25. Akombi BJ, Agho KE, Merom D, Renzaho AM, Hall JJ. Multilevel Analysis of Factors Associated with Wasting and Underweight among Children Under-Five Years in Nigeria. *Nutrients*. 2019 Apr 10;11(4):800.
26. Hossain M, Chompikul J, Faisal A, Oulman C, Agboatwalla M, Raza S. Early growth patterns are associated with stunting at 2 years of age in rural Pakistan. *Matern Child Nutr*. 2018 Oct;14(4):e12637.
27. Le Nestour A, Roschnik N, Balabanova D. Universal health coverage for children and women of reproductive age in the SDG Era: findings from new country-level monitoring for Pakistan. *BMJ Glob Health*. 2021 Feb 1;6(2):e004111.
28. Liu G, Yu M, Hu H, Liu X, Lyu M. Changes in the gut microbiota of children from the Wei River Basin, China suffering from wasting, stunting and wasting plus stunting. *BMC Microbiology*. 2019 Dec; 19(1):229.
29. Payne S, Gardner A, Chin WWL, Raza A, Jasseh M, Forman D, et al. Vaccines to prevent diarrhoea and malnutrition—A global priority. *Front Public Health* [Internet]. 2021 [cited 2023 Feb 5];9. Available from: <https://pubmed.ncbi.nlm.nih.gov/34909425/>
30. World Health Organization. Guideline: updates on the management of severe acute malnutrition in infants and children [Internet]. Geneva: World Health Organization; 2013 [cited 2023 Feb 5]. Available from: <https://apps.who.int/iris/handle/10665/95584>
31. Zaidi S, Mohmand SK, Bhutta ZA, Gazdar H, Mahmood A, Acosta AM, et al. Nutrition interventions for maternal and early childhood health and survival in Pakistan: a study protocol for an effectiveness-implementation hybrid trial. *Trials* [Internet]. 2021 Apr 26 [cited 2023 Feb 5];22(1). Available from: <https://trialsjournal.biomedcentral.com/articles/10.1186/s13063-021-05190-2>
32. Duarte-Salles T, Vizeneux A, Wang M, Engström E. Dietary Assessment in Low- and Middle-Income Countries: A Systematic Literature Review and Meta-Analysis of Validation Studies. *Nutrients*. 2019 Sep 11;11(9):2214.
33. Lassi ZS, Padhani ZA, Rabbani A, Rind F, Salam RA, Suhag Z, et al. Impact of Policy Initiatives on Child Health Outcomes in Pakistan: A Literature Review. *Int J Environ Res Public Health* [Internet]. 2020 Sep 25 [cited 2023 Feb 5];17(19). Available from: <https://pubmed.ncbi.nlm.nih.gov/32984603/>
34. Huddle JM, Gibson RS, Cullinan TR. The impact of mungbean and soybean meal supplementation on the growth and morbidity of schoolchildren in rural South India. *Food Nutr Bull*. 1998 Dec;19(4):326-35.
35. Lelijveld N, Hendrixson DT. A New Paradigm for Food-Based Prevention of Child Malnutrition: Unleashing Children's Protection and Potentials with Locally Produced complementary Foods and Supplements. *Front Nutr* [Internet]. 2020 Dec 8 [cited 2023 Feb 5];7. Available from: <https://www.frontiersin.org/articles/10.3389/fnut.2020.612141/full>
36. Zaidi S, Mohmand SK, Bhutta Z. Micronutrient deficiencies in mothers and children in Pakistan: current situation and strategies for prevention. *Perspectives in Public Health*. 2019 May;139(3):146-8.
37. Zaidi SS-A, Mohmand SK, Bhutta ZA. Addressing malnutrition: An opportunity to reduce health inequities in Pakistan. *East Mediterr Health J*. 2018 Sep 1;24(09):956-8.
38. Shahzad K, Bukhatri P, Nazeer H, Elahi M, Khanum N. Food and Nutrition Security in the Indus Eco-Region of Pakistan: Challenges and Opportunities. *Food and Nutrition Sciences* [Internet]. 2012 Oct 29 [cited 2023 Feb 5];03(11):1585-92. Available from: [https://www.scirp.org/\(S\(351jmbntvnsjt1aadkpozje\)\)/reference/ReferencesPapers.aspx?ReferenceID=1876284](https://www.scirp.org/(S(351jmbntvnsjt1aadkpozje))/reference/ReferencesPapers.aspx?ReferenceID=1876284)
39. Zulfiqar B, Zaidi A, Subhani R, Nixon Hughes C, Husain N. Health System Embedding of National Nutrition Programmes: A cross-case analysis of eight countries in South Asia and Africa. *Public Health Nutr*. 2022 Oct 24;1-13. Available from: <https://www.cambridge.org/core/journals/public-health-nutrition/article/health-system-embedding-of-national-nutrition-programmes-a-crosscase-analysis-of-eight-countries-in-south-asia-and-africa/D4C17E59D167DA9ECE20F0316DDE915B>
40. Bhutta ZA, Nizami SQ, Soofi SB, Memon ZA, Ul Haque M, Hussain I, et al. Pakistan National Nutrition Survey 2018. Islamabad; 2019.
41. Acosta AM, Fanzo J. Fighting Maternal and Child Malnutrition: Analysing the political and institutional determinants of delivering a national multisectoral response in six countries. Brighton, UK: Institute of Development Studies; 2012 Apr. 104 p.
42. Haddad L, Achadi E, Bendeck MA, Ahuja A, Bhatia K, Bhutta Z, et al. Global nutrition report 2015: actions and accountability to advance nutrition and sustainable development. *Intl Food Policy Res Inst*. 2015;
43. Mogasale V, Wi TC, Das A, Kane S, Singh AK, George B, et al. Quality assurance and quality improvement using supportive supervision in a large-scale STH and schistosomiasis control program in India. *PLoS Negl Trop Dis*. 2018 Jun 28;12(6):e0006589.
44. Habicht JP, Victora CG, Vaughan JP. Evaluation designs for adequacy, plausibility and probability of public health programme performance and impact. *Int J Epidemiol*. 1999 Feb 1;28(1):10-8.
45. Ministry of Planning Development & Reform Government of Pakistan. Pakistan Multi-Sectoral Nutrition Strategy [Internet]. 2018 Dec [cited 2023 Feb 5] p. 37. Available from: <https://www.mhinnovation.net/innovations/pakistan-multi-sectoral-nutrition-strategy>



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