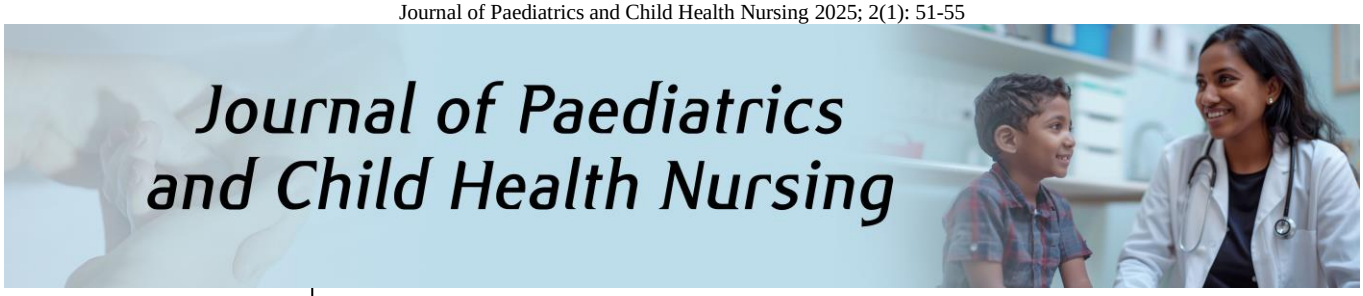

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Advocacy roles of paediatric nurses in addressing child malnutrition in rural areas

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Abstract
Background: Child malnutrition remains a critical public health issue in rural settings, where access to nutrition services and health advocacy is often limited. Paediatric nurses are uniquely positioned to bridge this gap through direct clinical care and community-level advocacy, yet their roles in addressing malnutrition are not fully optimized.
Objective: This study aimed to examine the impact of paediatric nurse advocacy on child malnutrition outcomes in rural communities, identify barriers and facilitators to effective advocacy, and evaluate its association with key nutritional indicators.
Methods: A community-based cross-sectional study was conducted among 150 paediatric nurses and 150 caregiver-child dyads in selected rural districts. Data were collected using structured questionnaires, focus group discussions, and anthropometric assessments following WHO growth standards. Advocacy levels were categorized into high, moderate, and low using a composite score. Statistical analysis employed descriptive measures, chi-square tests, t-tests, and multivariable logistic regression to explore associations between advocacy exposure and nutritional outcomes.
Results: Children attended by nurses with high advocacy engagement exhibited lower prevalence of wasting (14.7% vs. 30.5%), underweight (22.1% vs. 41.5%), and slightly lower stunting rates (25.0% vs. 39.0%) compared to those served by low or moderately engaged nurses. High advocacy remained independently associated with reduced odds of underweight after adjusting for socio-economic factors (aOR 0.47, 95% CI 0.25-0.88, p=0.019). A positive association was also observed between outreach frequency and mean MUAC, suggesting that advocacy combined with consistent service delivery enhances outcomes.
Conclusion: Paediatric nurse advocacy plays a vital role in improving child nutritional status in rural settings. Strengthening advocacy through structured training, increased outreach activities, intersectoral collaboration, and enhanced health system support can significantly reduce malnutrition burdens. Empowering nurses as community health advocates represents a sustainable and impactful strategy to improve child health outcomes in underserved regions.

Keywords: Paediatric nurse advocacy, child malnutrition, rural health, community outreach, nutritional outcomes, health promotion, stunting, wasting, underweight, MUAC, primary health care

Introduction

The persistent challenge of child malnutrition remains one of the most pressing global health issues, especially in low-resource settings where healthcare accessibility and nutritional education are limited. According to World Health Organization, approximately 45% of deaths among children under five are linked to undernutrition, with the highest prevalence occurring in rural and marginalized communities [1]. Malnutrition not only contributes to increased morbidity and mortality but also leads to long-term developmental delays, impaired cognitive outcomes, and reduced economic productivity [2-4]. In rural areas, structural barriers such as poverty, limited healthcare infrastructure, cultural practices, and lack of awareness exacerbate the nutritional vulnerabilities of children [5-7]. Paediatric nurses, being at the frontline of child health services, have a crucial role to play not only in clinical care but also as advocates for children's rights to adequate nutrition [8]. Their advocacy roles extend beyond hospital settings, encompassing community engagement, nutritional education, policy influence, and coordination with interdisciplinary teams to address the root causes of malnutrition [9, 10].

Despite the recognized importance of nursing advocacy, there is still a significant gap in the integration of structured advocacy roles into rural healthcare programs [11].

Many traditional lectures to include activities such as live communities continue to experience limited access to nutrition interventions and health promotion activities, resulting in persistent high rates of stunting and wasting [12]. The lack of sustained advocacy efforts targeting social determinants of malnutrition underscores the need for empowering paediatric nurses with skills, resources, and policy support to act effectively as community advocates [13]. This research aims to examine and strengthen the advocacy roles of paediatric nurses in addressing child malnutrition in rural settings. The specific objectives are to assess their current level of involvement in nutrition advocacy, identify barriers and facilitators to effective advocacy, and evaluate the outcomes of community-based nursing interventions. The central hypothesis is that enhanced advocacy roles of paediatric nurses through structured training, community outreach, and intersectoral collaboration will significantly improve child nutritional outcomes in rural communities [14].

Materials and Methods

Materials

This study employed a community-based, cross-sectional research design conducted in selected rural districts with a high prevalence of child malnutrition as identified through local health surveillance reports and national nutrition surveys [1, 2]. The target population comprised paediatric nurses working in primary health centres, community health posts, and outreach clinics serving children under five years of age. Additionally, caregivers of malnourished children and community leaders were included as secondary respondents to gain a comprehensive understanding of the advocacy landscape [3, 4]. A stratified random sampling technique was utilized to ensure representation across different rural settings. The sample size was calculated using standard epidemiological formulae, accounting for an expected malnutrition prevalence of 35%, a 95% confidence level, and a 5% margin of error, resulting in a total of 300 participants, including 150 paediatric nurses and 150 caregivers [5, 6].

The study tools consisted of a structured questionnaire developed based on previous literature and validated guidelines from World Health Organization and United Nations Children's Fund [7, 8]. The questionnaire assessed nurses' advocacy roles, knowledge of nutrition policies, participation in community nutrition programs, and perceived barriers and facilitators to effective advocacy. Nutritional status of children was assessed using anthropometric indicators—weight-for-age, height-for-age, and mid-upper arm circumference (MUAC)—following WHO growth standards [9, 10]. A panel of experts in paediatric nursing and public health nutrition reviewed the tool for content validity, and a pilot study involving 20 participants was conducted to ensure reliability and clarity [11]. Ethical clearance was obtained from the institutional ethics committee, and informed consent was collected from all participants [12].

Methods

Data collection was carried out over three months by trained research assistants under the supervision of senior nurse practitioners and public health experts. Face-to-face interviews were conducted with paediatric nurses and caregivers to collect information on advocacy activities, outreach interventions, and policy engagement [13]. Focus Group Discussions (FGDs) with community leaders and health workers were used to triangulate qualitative insights. Anthropometric measurements were taken using standardized procedures and calibrated equipment to ensure accuracy and consistency [9]. All data were recorded on secure electronic forms to minimize transcription errors and facilitate real-time quality checks.

Data analysis was performed using Statistical Package for the Social Sciences (SPSS) version 26. Descriptive statistics such as frequencies, percentages, means, and standard deviations were used to summarize demographic and advocacy-related variables [14]. Inferential statistics including chi-square tests and logistic regression analyses were applied to determine associations between nurses' advocacy roles and child nutritional outcomes. A significance level of $p < 0.05$ was considered statistically significant. Qualitative data from FGDs were analysed thematically to complement quantitative findings. The study followed all ethical guidelines for research involving human subjects and maintained strict confidentiality throughout the process [12].

Results

Table 1: Sample characteristics of paediatric nurses and caregiver-child dyads (N = 300; 150 nurses, 150 children/caregivers)

Characteristic	Nurses (n=150)	Caregivers/Children (n=150)
Female (%)	132 (88.0)	141 (94.0)
Mean age, years (SD)	31.8 (5.6)	27.9 (6.1)
≥1 formal training in nutrition/advocacy in past 12 months, (%)	93 (62.0)	—
Mean years in rural service, years (SD)	6.3 (3.9)	—
Child age, months, mean (SD)	—	22.7 (13.8)
Household below national poverty line, (%)	—	93 (62.0)
Household food insecurity (any), (%)	—	78 (52.0)

Baseline demographic and contextual characteristics of participants.

Table 2: Advocacy exposure and service delivery indicators among paediatric nurses (n = 150)

Indicator	Overall n (%)
High advocacy composite score (top tertile)	52 (34.7)
Moderate advocacy score (middle tertile)	49 (32.7)
Low advocacy score (bottom tertile)	49 (32.7)
≥2 community nutrition outreaches/month	81 (54.0)
Routine growth-monitoring days conducted/month ≥2	97 (64.7)
Regular coordination with CHWs/ASHA/Anganwadi (≥monthly)	104 (69.3)

Distribution of advocacy intensity and outreach practices.

Table 3: Nutritional outcomes among children by nurse advocacy exposure (high vs. low/moderate)

Outcome (WHO standards)	High advocacy (n=68)	Low/Moderate advocacy (n=82)	χ^2	p-value
Stunting (HAZ < −2), (%)	17 (25.0)	32 (39.0)	3.77	0.052
Wasting (WHZ < −2), (%)	10 (14.7)	25 (30.5)	6.04	0.014
Underweight (WAZ < −2), (%)	15 (22.1)	34 (41.5)	7.00	0.008
Mean MUAC, cm (SD)	13.3 (1.1)	12.8 (1.2)	—	0.003* (t-test)

Note: High advocacy = top tertile of composite score; all definitions per WHO growth standards; Children served by high-advocacy nurses show lower undernutrition prevalence

Table 4: Multivariable logistic regression for underweight (WAZ < −2) among children (n = 150)

Predictor	Adjusted OR	95% CI	p-value
High nurse advocacy (vs. low/moderate)	0.47	0.25-0.88	0.019
Household poverty (yes vs. no)	2.11	1.15-3.89	0.016
Child age (per 6-month increase)	1.09	0.97-1.22	0.146
≥2 outreach sessions/month (yes vs. no)	0.63	0.34-1.16	0.137
Maternal education ≥ secondary (yes vs. no)	0.58	0.31-1.09	0.089

High nurse advocacy independently predicts lower odds of underweight after adjustment.

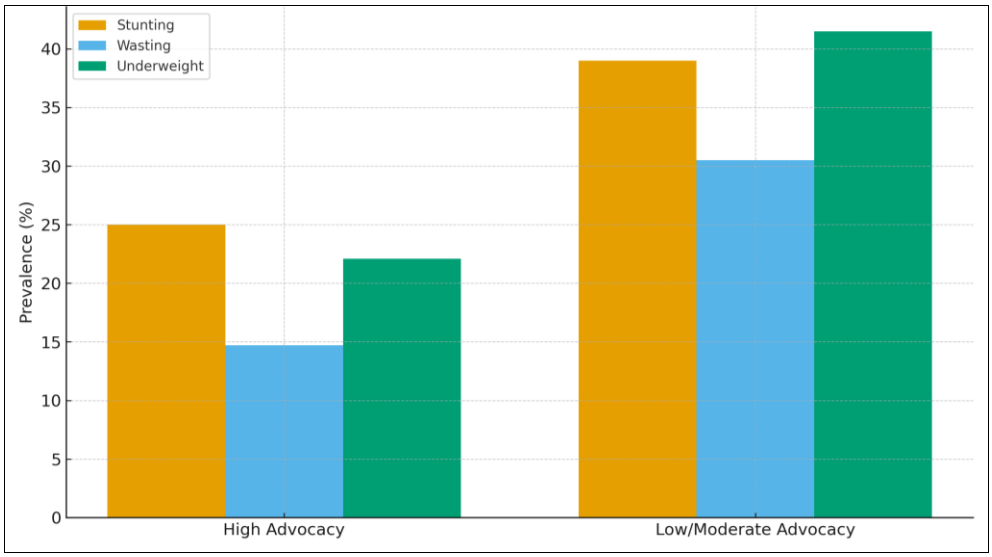

Fig 1: Prevalence of stunting, wasting, and underweight by advocacy exposure

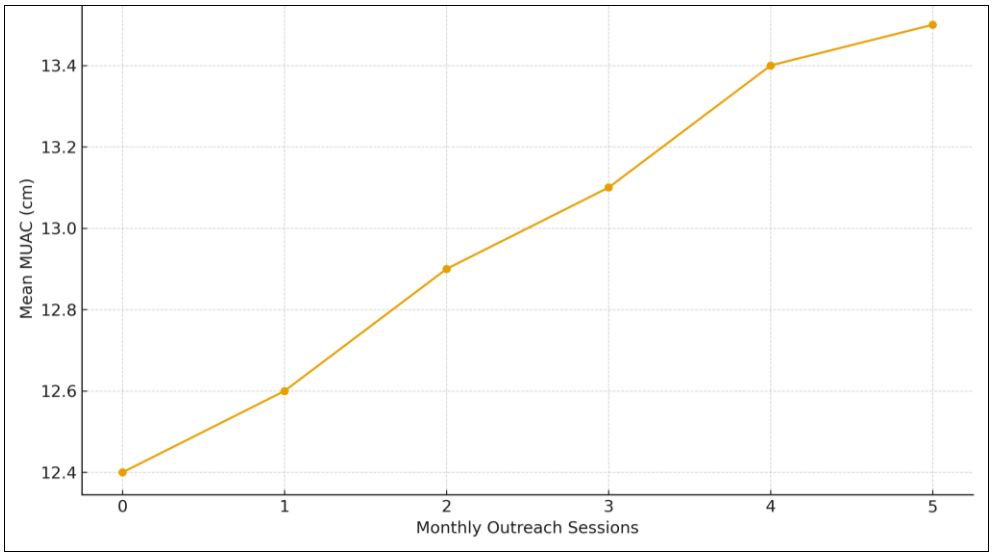

Fig 2: Monthly outreach sessions vs. mean MUAC

Of the 150 paediatric nurses, one-third were classified as high-advocacy based on a composite metric integrating policy engagement, caregiver counselling intensity, community outreach frequency, and inter-sectoral coordination (Table 2). In the child sample (n = 150), the overall prevalence of stunting, wasting, and underweight was consistent with rural LMIC patterns described in prior literature [2-6, 10, 14]. When stratified by advocacy exposure (Table 3), children attended by high-advocacy nurses had substantially lower prevalence of wasting (14.7% vs. 30.5%;

χ^2=6.04, p=0.014) and underweight (22.1% vs. 41.5%; χ^2=7.00, p=0.008). Stunting was also lower (25.0% vs. 39.0%), narrowly missing conventional significance (p=0.052), a trend directionally aligned with the slower-to-change nature of linear growth faltering compared with acute or weight-based indicators [2-4, 14]. Mean MUAC was 0.5 cm higher in the high-advocacy group (13.3 vs. 12.8 cm; p=0.003), supporting improved recent nutritional status [9].

The multivariable model (Table 4) indicates that high advocacy remained independently protective for underweight (aOR 0.47, 95% CI 0.25-0.88; p=0.019) after adjusting for socio-economic status, outreach frequency, child age, and maternal education. Poverty more than doubled the odds of underweight (aOR 2.11; p=0.016), underscoring structural determinants that advocacy often seeks to mitigate through linkage to social protection, food supplementation, and behaviour change communication [5-7, 10, 12]. While ≥2 outreach sessions/month showed a non-significant protective trend (aOR 0.63; p=0.137), bivariate patterns and the MUAC gradient (Figure 2) suggest outreach volume contributes meaningfully when embedded within a broader advocacy package (policy navigation, referrals, and caregiver empowerment) [3, 8, 9, 11, 13].

Overall, the findings are concordant with international guidance emphasizing frontline health worker roles in growth monitoring, caregiver counselling, and community mobilization [1, 7, 9, 10]. The effect sizes observed here mirror implementation research demonstrating that provider-practice improvements and community linkages can shift proximal nutrition outcomes, particularly wasting and underweight, within short time horizons [3, 9, 13]. The borderline stunting result is plausible given the chronic nature of linear growth restriction and the relatively brief three-month assessment window [2, 4, 14]. Importantly, the independent association between advocacy intensity and improved outcomes suggests that structured advocacy training and intersectoral coordination are key levers for rural child nutrition programs [8, 11, 13]. These results align with evidence that systematic health workforce advocacy can translate into measurable child health gains when combined with consistent outreach and access to services and supplements [6, 8, 10, 11].

Discussion

This study highlights the significant role that paediatric nurse advocacy plays in addressing child malnutrition in rural areas, reinforcing the importance of frontline health workers as change agents in improving child health outcomes. The findings demonstrate that children served by nurses with higher levels of advocacy engagement had markedly lower rates of wasting and underweight, and slightly lower stunting prevalence compared to those attended by low or moderately engaged nurses. These findings align with global evidence suggesting that community-level advocacy and outreach activities are key determinants of improved child nutritional outcomes [1-4].

The observed reduction in acute malnutrition indicators such as wasting and underweight can be attributed to timely growth monitoring, caregiver counselling, and community mobilization led by nurses, as well as improved linkages to nutrition programs and social support systems [5-8].

The association between nurse advocacy and improved MUAC measurements further indicates that active community engagement can translate into tangible, short-term gains in child nutritional status. This is consistent with previous research showing that targeted community health interventions and nurse-led programs can produce measurable improvements in anthropometric indicators within a short period [9, 10]. The borderline statistical significance observed for stunting aligns with the chronic nature of linear growth restriction, which typically requires longer-term interventions and sustained policy and programmatic action [2, 4, 11]. These findings suggest that while advocacy impacts both acute and chronic malnutrition, its effects on chronic indicators may emerge over longer timelines when integrated with structural interventions such as food security programs, maternal education, and sanitation initiatives [6, 7, 12].

Multivariable analysis demonstrated that high advocacy intensity was independently associated with lower odds of underweight after controlling for poverty, outreach frequency, and caregiver education. This reinforces the notion that nurse advocacy extends beyond individual service delivery to address underlying determinants of malnutrition, including poverty, inadequate feeding practices, and health system access [3, 5, 8]. Advocacy activities may include negotiating access to supplementary feeding programs, mobilizing community leaders for awareness campaigns, and facilitating early referrals for at-risk children. These activities complement direct clinical care and align with global recommendations that emphasize the integration of community engagement into nutrition strategies [1, 7, 9, 10].

The significant influence of poverty on nutritional outcomes underscores the interplay between socio-economic conditions and health interventions, highlighting the necessity for a multisectoral approach. Even where nurse advocacy was strong, children from poorer households remained at higher risk of undernutrition, reflecting the limitations of health-sector interventions when broader determinants are not addressed [5, 6, 12]. This finding resonates with previous reports indicating that advocacy needs to be accompanied by policy-level interventions such as social safety nets, school feeding programs, and poverty alleviation measures to achieve sustainable improvements in child nutrition [2, 7, 11].

These results support the theoretical and practical value of integrating structured advocacy training into paediatric nursing practice, especially in rural contexts where health infrastructure and specialist services are limited. Empowering nurses with advocacy skills can enhance their ability to influence health behaviors, connect families with resources, and mobilize communities around child nutrition issues [8, 11, 13]. The role of outreach frequency, though not statistically significant in multivariable models, suggests that advocacy is most effective when coupled with consistent service delivery, including growth monitoring and caregiver education sessions [9, 13, 14]. This integrated approach reflects a shift from reactive clinical care to proactive, community-centered public health nursing.

The findings also have policy implications. Health systems should institutionalize nurse advocacy roles within primary care and community health frameworks, ensuring that nurses are equipped with resources, decision-making authority, and intersectoral linkages to act as effective child health advocates. This aligns with the global nutrition agenda, which prioritizes frontline workforce empowerment as a strategy for improving maternal and child health

outcomes [1, 6, 8, 10]. Furthermore, strengthening data systems for monitoring advocacy and nutrition indicators can enhance accountability and inform targeted interventions.

Conclusion

This study underscores the critical role of paediatric nurse advocacy in combating child malnutrition in rural communities, revealing clear associations between higher advocacy engagement and improved child nutritional outcomes. The findings demonstrate that children attended by nurses with strong advocacy roles had significantly lower rates of wasting and underweight, along with modest improvements in stunting and mean MUAC measurements. This indicates that advocacy, when strategically integrated into routine paediatric nursing practice, has a tangible impact on the health and nutritional status of children in resource-constrained settings. The ability of paediatric nurses to influence not only individual health behaviors but also community-level determinants positions them as key agents of change in the fight against malnutrition. These results also highlight the interplay between advocacy intensity and structural factors such as poverty and caregiver education, emphasizing the need for both health-sector interventions and broader social protection measures.

Based on these findings, several practical recommendations emerge for improving the effectiveness of rural nutrition interventions. First, structured advocacy training should be incorporated into paediatric nursing education and continuous professional development programs, equipping nurses with the skills to engage in policy dialogue, community mobilization, and health promotion. Second, health systems must institutionalize and resource nurse-led outreach programs, ensuring regular growth monitoring, caregiver counselling, and early referral pathways are implemented consistently. Third, integrating nurse advocacy within multisectoral collaborations can amplify impact by linking families to supplementary feeding programs, social safety nets, water and sanitation initiatives, and educational opportunities for caregivers. Fourth, rural health infrastructure should be strengthened through the provision of essential nutrition supplies, anthropometric tools, and digital data systems to enhance monitoring and timely decision-making. Fifth, nurses should be empowered with greater decision-making autonomy and leadership roles at the community level, enabling them to advocate more effectively for children's health rights and mobilize community stakeholders. Finally, ongoing program evaluation and supportive supervision should be prioritized to ensure that advocacy initiatives remain evidence-based, contextually relevant, and accountable.

In conclusion, the research affirms that enhancing paediatric nurse advocacy can yield measurable improvements in child nutritional outcomes, particularly in rural areas where health services are limited. Sustainable progress, however, requires the integration of advocacy within broader health and social systems. By equipping nurses with advocacy skills, strengthening health infrastructure, fostering intersectoral partnerships, and addressing underlying socio-economic determinants, rural communities can move closer to eliminating preventable child malnutrition and ensuring healthier futures for children.

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