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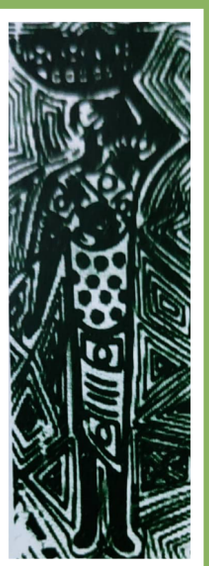

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REVIEW

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Advocacy by Paediatricians: A Potential Strategy for Ending the Menace of Childhood Malnutrition in Nigeria

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Abstract
Background: Childhood malnutrition remains prevalent in Nigeria, causing significant morbidity and mortality, especially among children under the age of five years. This is despite the several governmental and non-governmental programmes aimed at reducing the burden, such as the Baby-friendly Hospital Initiative. Advocacy is a powerful tool paediatricians can deploy to tackle the persisting burden of childhood malnutrition in Nigeria. They can achieve this by taking the right nutrition messages and lobbying to the relevant stakeholders.
Method: Relevant articles were retrieved using multiple databases, including PubMed, Google search engine and websites of reputable organisations. Boolean operators were used to refine searches by combining multiple keywords, such as childhood, malnutrition, paediatricians, advocacy, Nigeria, and sub-Saharan Africa. A total of 152 peer-reviewed articles were retrieved, and forty relevant publications were used to develop this review. Additionally, national policy documents on malnutrition in Nigeria, as well as the 2018 and 2023 National Demographic Health Surveys of 2018 and 2023 were retrieved and reviewed.
Results: Both governmental and non-governmental organisations that could be targeted for advocacy were identified. Identified governmental organisations include federal, state, and local government executives and lawmakers, as well as various line ministries, departments, and agencies. Non-governmental organisations include the WHO, UNICEF, other donor agencies, the media, traditional and religious leaders, among others. Paediatrician engagement with these stakeholders can lead to health promotion, increased funding and policy changes that holistically address childhood malnutrition.
Conclusion: Advocacy by paediatricians provides a powerful strategy for addressing the menace of childhood malnutrition in Nigeria.
Keywords: Advocacy, Childhood, Malnutrition, Paediatricians, Nigeria.

Introduction

Malnutrition is a spectrum of undernutrition and overnutrition, which refers to deficiencies, excesses, or imbalances in a person's intake of energy and/or nutrients.[1] Undernutrition comprises of micronutrient deficiencies, acute and chronic malnutrition.[2] In undernutrition, there is a state of deficiency of energy, protein and other nutrients which causes growth retardation and adversely affects tissue and body functions.[3] While acute malnutrition results from a sudden reduction in food intake or diet quality, chronic malnutrition, on the other hand, is due to insufficient intake or absorption of essential nutrients over a protracted period.[2] Wasting and stunting indicate acute and chronic malnutrition, respectively, while underweight may indicate both acute and chronic malnutrition.[4] Acute malnutrition can be moderate or severe. The combination of moderate acute malnutrition (MAM) and severe acute malnutrition (SAM) is known as global acute malnutrition.

Malnutrition is a significant contributor to childhood morbidity and mortality. Globally, it is estimated that nearly 150 million children under 5 (U5) are stunted (chronic), 45 million are wasted (acute), and 37 million are overweight or obese.[1] In addition to the above estimates, approximately 70% of the world population has micronutrient deficiencies due to inadequate intake of diets that are rich in iodine, calcium, iron, and vitamin E.[5] Undernutrition contributes directly and indirectly to about 50% of the U5

mortality in Nigeria.[6] Stunting is the most prevalent form of undernutrition, and an estimated 40% of Nigerian U5 children are stunted.[7] Nigeria has the second-highest burden of stunted children in the world.[1] Stunting has been shown to affect the early cognitive development of children adversely. [8] On the other end of the malnutrition spectrum is overnutrition, defined as a state of high intake of energy and protein, resulting in abnormal or excessive fat accumulation.[9] It manifests as overweight or obesity. Overnutrition is associated with significant childhood morbidities that cut across the cardiovascular, respiratory, endocrine, digestive, and central nervous systems.[10]

Nigeria is witnessing a rising incidence of overnutrition, especially among children and adolescents from affluent families.[11] This has created a situation of double and triple burdens of malnutrition. The double burden of malnutrition refers to the simultaneous existence of both undernutrition and overnutrition within a population.[12] The triple burden of malnutrition, on the other hand, refers to the coexistence of undernutrition, micronutrient deficiencies, and overnutrition.[13] Many programmes aimed at combating childhood malnutrition have been implemented in Nigeria. Some of these programmes include the Baby-friendly Hospital Initiative (BFHI), the National Policy on Food and Nutrition, the National Plan of Action on Food and Nutrition in Nigeria, the National Strategic Plan of Action, the Micronutrient Control Programme, and the Child Nutrition Fund managed by UNICEF, among many others. The BFHI in Nigeria was launched in 1992 to promote, protect, and support breastfeeding practices in tertiary and select secondary health facilities. [14]. BFHI in Nigeria partly failed because of a lack of sustainability plans and inadequate training of health care workers, especially at community levels, to accommodate the high rates of home deliveries. [14] Despite these laudable programmes, the menace of childhood malnutrition appears unending. The recent Nigeria Health and Demographic Survey of 2024 actually reported worsening indices across regions in Nigeria. [7] This review provides data on the burden of childhood malnutrition in Nigeria, the current management approach and the role of advocacy by paediatricians in reducing the burden of malnutrition in Nigeria.

Methods

Relevant articles were retrieved from multiple databases and search engines, including PubMed, Google Scholar, Google Books, CINAHL, EBSCOhost, Mendeley, and ResearchGate. Boolean operators were used to refine searches by combining multiple keywords, such as childhood, malnutrition, breastfeeding, infant feeding, paediatricians, advocacy, Nigeria, and sub-Saharan Africa. All peer-reviewed articles on childhood malnutrition among children under the age of five years in Nigeria, published between 1968 and 2025, were included in the review. A total of 152 peer-reviewed articles were retrieved, and thirty relevant publications that met the inclusion criteria were used to develop this review. Additionally, national policy documents on malnutrition in Nigeria, as well as the 2018 and 2023 National Demographic Health Surveys of 2018 and 2023 were retrieved and reviewed.

Historical perspective of childhood malnutrition

Human knowledge about food and nutrition is as old as the creation of mankind.[15] As far back as the eighteenth century, European medical literature described oedematous malnutrition associated with monotonous diets.[16] From the standpoint of child health and Africa, Dr Cicely Williams, a Jamaican physician, was credited with the description of kwashiorkor while working in the Gold Coast (Ghana) in 1933.[16] Subsequently, in 1959, Jelliffe introduced the term 'protein calorie malnutrition'.[3] Over the years, the classification of malnutrition using anthropometric variables has evolved, as shown in Table I. The popular Wellcome classification of malnutrition into clinical syndromes of kwashiorkor and marasmus is an adaptation of the Gomez classification that was introduced in 1970.[3] Protein energy malnutrition, which comprises of kwashiorkor and marasmus, was used to describe children with severe wasting and kwashiorkor and has been replaced by the term severe acute malnutrition [17, 18]

Table I: Historical classification of malnutrition using anthropometry

Classification	Variable	Grade	Definition
Gomez *et al* (1965)	Median WFA (%)	Mild (1) Moderate (2) Severe (3)	75 – 90% WFA 60 – 74% WFA <60% WFA
Wellcome (1972)	Median WFA (%) plus or minus oedema	Kwashiorkor, marasmus, etc	60 -80% < 60%
Waterlow (Wasting) (1977)	Median WFH (%)	Mild Moderate Severe	80 -89% WFH 70 -79% WFH <70% WFH
Waterlow (Stunting) (1977)	Median HFA (%)	Mild Moderate Severe	90 - 94% HFA 85 – 90% HFA <85% HFA
WHO (Wasting) (2006)	WFH (z-scores below median WFH)	Moderate Severe	z-score between -2 and -3 z-score < -3
WHO (Stunting) (2006)	HFA (z-scores below median HFA)	Moderate Severe	z-score between -2 and -3 z-score < -3
Kanawati and McLaren	MUAC/HC	Mild Moderate Severe	<0.31 <0.28 <0.25
Cole *et al*	BMI (BMI z-score for age)	Grade 1 Grade 2 Grade 3	BMI z-score for age <-1 BMI z-score for age <-2 BMI z-score for age <-3

WFA – Weight-for-Age, WFH - Weight for Height, HFA - Height for Age, BMI - Body Mass Index, MUAC - Mid-Upper Arm Circumference. HC - Head circumference. Adapted from: Mehta et al. Defining pediatric malnutrition: a paradigm shift towards aetiology-related definitions.[19]

Classification of Childhood Malnutrition

Childhood malnutrition is broadly classified into overnutrition, micronutrient deficiencies or excess and undernutrition. A schematic classification of malnutrition is shown in Figure 1.

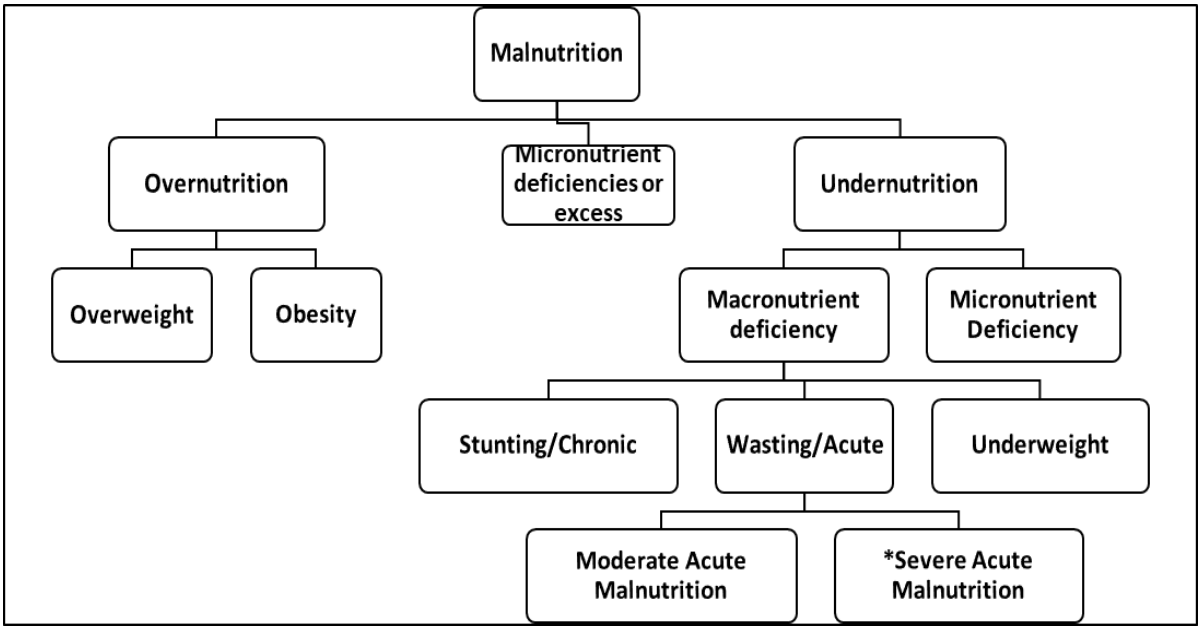

Figure 1: Schematic classification of malnutrition in children

***Marasmus, Marasmic kwashiorkor, Underweight, Underweight kwashiorkor, Kwashiorkor**

Mechanism of malnutrition

Several theories exist regarding the aetiopathogenesis of malnutrition. Marasmus or wasting is a physiologic adaptation to severe energy (calorie) deprivation over a period of months or years.[3] There is marked muscle wasting and loss of subcutaneous tissue. Kwashiorkor, on the other hand, is a maladaptive response to starvation and was originally thought to be caused by protein deficiency. It is characterised by oedema and specific skin changes. The exact mechanism of the pathogenesis of kwashiorkor is still unknown. Some unsuccessful theories are listed in Table II. Recent studies suggest that multiple factors, including altered gut microbiota, oxidative stress, the accumulation of free radicals, and mitochondrial damage, contribute to the development of liver disease. [20, 21]

Burden of undernutrition in Nigeria

A comparative analysis of the nutritional status of Nigerian children under 5 years old between 2016-2017 and 2023-2024, as reported in the Nigeria Health and Demographic Survey, is presented in Table III. The three indicators of stunting, wasting and underweight worsened among this age group nationally.

Table II: Unsuccessful past hypotheses on the mechanism of kwashiorkor[21]

Hypotheses	Authors
Protein deficiency	Williams, 1935
Niacin deficiency	Gillman and Gillman 1951
Anti-diuretic-hormone-like action of free ferritin	Srikantia 1958
Dysadaptation to protein-deficient stress	Gopalan 1968
Hormonal dysadaptation	Whitehead 1979
Aflatoxin intoxication	Hendricske 1984

Table III: A comparative analysis of the nutritional status of Nigerian U5 children between 2016 -2017 and 2023-2024

Parameter	Stunting (%)		Wasting (%)		Underweight (%)	
	2018	2023/24	2018	2023/24	2018	2023/24
National	37.0	40.0	7.0	8.0	22.0	27.0
North Central	39.2	51.6	7.5	8.0	18.8	27.3
North-East	75.4	78.4	12.7	10.7	40.8	46.5
North-West	87.5	81.0	11.4	10.2	48.5	44.7
South-East	24.1	27.1	5.3	8.5	12.5	20.2
South-South	24.5	22.5	4.9	13.3	11.8	20.6
South-West	33.3	27.8	6.2	12.0	18.5	25.7

Source – Nigeria Demographic and Health Survey [7, 22]

The Double Burden of Malnutrition in Nigeria

Amidst the crushing weight of undernutrition among Nigerian children, overweight is also on the rise, creating a double burden of malnutrition. The double burden of malnutrition exists in developing economies like Nigeria due to inequity in segments of society. We reported 8.1% and 4.5% prevalence rates of overweight and obesity, respectively, among school-aged children in Enugu.[23] In Lagos, Adeniyi *et al.*[24] reported 6.6% and 8.9% prevalence rates of overweight and obesity, respectively, among school-aged children. In a community-based, cross-sectional study involving two states (Osun in the south and Gombe in the North), Adeomi *et al.*[25] documented overall stunting, underweight, and wasting rates of 34.9%, 13.5%, and 10.3%, respectively, co-existing with 11.4% and 4.0% rates of overweight and obesity. While Gombe State had a significantly higher burden of undernutrition, Osun State had a substantially higher burden of overnutrition.[25]

The Triple Burden of Malnutrition in Nigeria

Nigeria is also experiencing the triple burden of malnutrition, which encompasses three types of

nutritional problems: undernutrition, overnutrition, and micronutrient deficiency, affecting individuals, households, and populations. Iron deficiency remains the most common cause of nutritional anaemias. According to the 2018 NDHS Report, 68% of Nigerian children had anaemia, with 27% having mild anaemia, 38% moderate and 3% severe anaemia.[22]

Management of Malnutrition

Hospital-based management

Sick children with SAM who fail the appetite test require hospitalisation and hospital management. The management of such children is divided into two phases. During Phase I, feeding is initiated at a lower caloric content of 100 kcal/kg with F75 or a local equivalent. The local equivalent in Nigeria is essentially a fortified, cereal-based diet that goes by different names at various centres across Nigeria. Acute emergencies likely to lead to mortality within the first 24 to 48 hours are also addressed during this phase. Such emergencies include hypoglycaemia, severe anaemia, hypothermia, shock and sepsis. Iron supplements must be delayed until the acute infections are treated. In Phase II, feeding is optimised, and antimalarial and anti-helminthic therapies, and micronutrient supplements, including iron, are introduced.

Community-based management

Malnutrition is more of a socio-economic than a biomedical problem. The majority of children with various forms of undernutrition do not present to health facilities and require community-based interventions. Children with SAM who passed the appetite test, as well as those with moderate acute malnutrition, underweight and stunting, require community-based management. Ready-to-Use Therapeutic Food (RUTF) and Ready-to-Use Supplementary Food (RUSF) are commonly used in community management and the prevention of childhood malnutrition.

The Concept of Advocacy

Advocacy is any attempt to influence public policy and practice, or any other decisions of institutional elite. Advocacy activities may be aimed directly at decision-makers or indirectly through shaping public opinion or by disseminating alternative models of policy and practices. [26] Advocacy seeks to change determinants such as laws, regulations, policies and institutional practices, prices, and product standards that influence the personal health choices of individuals, and the environments in which these are made.[27] Okonofua *et al.* demonstrated that advocacy and public health education are effective in increasing the commitment of decision-makers and policymakers to provide needed resources for implementing evidence-based maternal and child health (MCH) services in Nigeria. [28] Childhood malnutrition remains pervasive in Nigeria despite decades of funding and investments. Advocacy provides a potential strategy for combating the menace of childhood malnutrition in Nigeria, and paediatricians are well-suited for this daunting role.

Paediatricians, Advocacy and Child Nutrition in Nigeria

Advocacy, in the context of paediatrics and child health, refers to speaking out publicly on behalf of children and young people. [29] This is particularly important because children are vulnerable and often lack a voice in many health issues that affect them. Paediatricians play a pivotal role in advocating on behalf of children. This is because paediatricians have both the duty of care to sick children as well as critical roles to play in preventing diseases by confronting the determinants of child health that underpin biomedical causes. Malnutrition is one of the key determinants of child health, providing multiple advocacy opportunities for paediatricians. Several relevant agencies and stakeholders in the nutrition domain should be engaged to mitigate childhood malnutrition in the country. These include the ministries of health, education, agriculture, and finance, civil societies and non-governmental organisations, among others. Individuals and groups can also be targeted with specific advocacy messages. Table IV summarises the potential targets for child nutrition advocacy using the acronym “NO HUNGER” derived from Sustainable Development Goal 2, which states 'zero hunger'.[31] It also includes the requisite advocacy tools and the expected outcomes.

Table IV: Targets and mechanisms for specific advocacy messages towards promoting nutrition and food security

Acronym	Meaning	Advocacy tools and strategies	Expected Outcomes
N	News Media	Communiques from scientific meetings, campaigns via electronic and print media, and social media handles	Increased awareness of child nutrition and malnutrition, leading to behavioural changes and investments
O	Organisations and Corporate bodies	Lobbying	Improved funding for nutrition-related activities
H	Households and Hospitals	Counselling, health talks, support groups	Increase in appropriate feeding practices, such as exclusive breastfeeding and other infant feeding practices, as well as improved hygiene, sanitation, and health-seeking behaviours.
U	Unions (Town, Women)	Town hall meetings, Health education	Family support for breastfeeding mothers and improved household hygiene and sanitation. Empowerment of women and families
N	Non-Governmental Organisation	Communiques from scientific meetings, regional and national nutritional data, and lobbying	Continued donor support for child nutrition directed to places of critical needs based on evidence
G	Government and Global Bodies	Communiques from scientific meetings, regional and national nutritional data, lobbying, and petitions	Improved funding for child nutrition-related activities in Nigeria. Improved investment in agriculture, education, and critical infrastructure.
E	Educational Institutions	Health education, meetings,	Implementation of nutrition-related school health programmes
R	Religious and Traditional Leaders	Health education, meetings	Strengthening of religious and cultural practices that promote infant nutrition.

Media

Many people in Nigeria have access to various forms of media, including traditional electronic and print media, as well as social media. Paediatricians need to utilise these platforms to advocate for exclusive breastfeeding consistently, continue breastfeeding, introduce complementary feeding appropriately, and promote healthy feeding habits using locally available nutritious foods.

Organisations and Corporate bodies

Corporate bodies and other profitable organisations, such as the banking sector and telecommunications, can be approached to set aside a small percentage of their profit towards preventing and managing childhood malnutrition. They will also need to ensure that working nursing mothers in their organisation receive sufficient maternity leave and that crèches are provided for continued breastfeeding when they return from maternity leave.

Households and Hospitals

Charity should begin at home. Fathers and grandmothers of newborns should support the nursing mother to breastfeed their babies exclusively. This is a critical first step toward the prevention of childhood malnutrition. Hospitals need to revitalise the moribund Baby Friendly Hospital Initiative. Hospitals and facilities that manage SAM can provide safety nets and rebates for such hospitalised children.

Unions

The Town's and Women's unions are powerful social groups for enlightenment and behavioural modifications. Women's unions offer an opportunity to educate young women about breastfeeding and preparing homemade, nutritious foods for children and families during their meetings.

Non-Governmental Organisations (NGOs)

Many NGOs are working in the nutritious space, including the WHO and UNICEF. Others need to be encouraged to join. There is, however, the need to advocate for diversification to other areas

that contribute of childhood malnutrition, such as household poverty, unemployment, climate change and endemic corruption.

Government and Global Agencies

The government at all levels plays a critical role in stemming the tide of childhood malnutrition in Nigeria. Child nutrition is a child rights issue, and it is a violation of this right when the government fails to pay adequate attention to it. The government should be proactive in tackling communal clashes and insecurity that threaten farmers and the farming sector. The advocacy message should target executives and legislators to pass and implement appropriate bills. Women's empowerment and substantial investment in mechanised agriculture will help address food and nutrition insecurity. The message of childhood malnutrition should also be part of the global discourse. The international community needs to rethink their economic and other policies that affect the most vulnerable in developing nations. Climate change also needs to be addressed in accordance with the Kyoto Protocol.

Educational Institutions

School feeding as a component of the School Health Programme needs to be mainstreamed into pre-primary, primary and basic educational systems. This will not only address childhood malnutrition but will also improve school enrolment and academic performance.

Religious and Traditional Leaders

Religious and traditional rulers are powerful gatekeepers in our various communities. Various faith- and community-based organisations operate in their respective domains. They are, therefore, veritable tools for positive behavioural changes, social mobilisation and empowerment. They can champion the establishment of food banks and empower indigent families in the communities.

Conclusions

Nigeria still has a high burden of childhood undernutrition, hidden hunger and a rising threat of overnutrition, creating a situation of triple burden of malnutrition. Concerted advocacy by paediatricians is a potential strategy for combating the menace of childhood malnutrition, considering the failure of previous governmental and non-governmental programmes.

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