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AWARENESS OF MOTHERS AND CAREGIVERS OF CHILDREN AGED 6 TO 59 MONTHS REGARDING CHILD AND ADOLESCENT MALNUTRITION IN THE BENGAMISA HEALTH ZONE, TSHOPO PROVINCE, DRC

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ABSTRACT

Introduction: The objective of this study was to assess mothers' knowledge of childhood malnutrition and preventive measures.

Materials and Methods: A descriptive cross-sectional study was conducted among 167 mothers in the Bengamisa Health Zone from April 12 to June 25, 2025.

Results: 29% of mothers were aware of malnutrition; the main cause of malnutrition cited was undernutrition (95%), and kwashiorkor was the most recognized clinical form (85%). The most frequently cited measures for preventing malnutrition were proper nutrition (76%) and financial resources (71%); all other prevention measures were overlooked. The overall level of mothers' knowledge about malnutrition was "Low" (76%).

Conclusion: Mothers' knowledge of malnutrition is lacking; interventions to promote good nutritional practices are essential.

KEYWORDS: Knowledge, child and adolescent malnutrition, Tshopo, DRC

I. INTRODUCTION

Malnutrition worldwide is an irreversible scourge [1]; it has persisted in all its forms, with children bearing the brunt of it. It is estimated that in 2020, more than 149 million children under the age of 5 were stunted;

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more than 45 million were wasted; and nearly 39 million were overweight [2].

In resource-limited countries, malnutrition is common in all its forms and is caused by multiple factors. In Benin, the prevalence of all forms of malnutrition was 32.0%; female gender, anemia, low birth weight, reduced household food consumption, and lack of dairy product consumption were associated factors [3]. In Burkina Faso, the prevalence rates of malnutrition were high, at 15% for acute malnutrition, 13% for chronic malnutrition, and 7% for underweight. Age ≥ 12 months increases the risk of acute malnutrition (aOR = 2.3, 95% CI: 1.1–4.7), while knowledge of the AME reduces the risk of acute malnutrition (aOR = 0.4, 95% CI: 0.2–0.9). Additionally, age ≥ 12 months (aOR: 0.08, 95% CI: 0.03–0.22), female sex (aOR = 0.31, 95% CI: 0.12–0.77), and the absence of food taboos (aOR = 0.13; 95% CI: 0.05–0.3) reduced the risk of chronic malnutrition in infants [4].

In Cameroon, the prevalence of acute global malnutrition (AGM) was 4.5%, 7.8% for acute moderate malnutrition (AMM), and 1.6% for acute severe malnutrition (ASM). The age group most affected by OAM was children aged 48 to 59 months; for MAM, children aged 36 to 47 months were the most affected (11%); and children aged 48 to 59 months had the highest prevalence of SAM[5].

In the DRC, according to the recent Demographic and Health Survey, which used three nutritional indices (height-for-age, weight-for-height, and weight-for-age) and overweight status, 45% of children suffered from stunting, and 23% had severe stunting; 7% were emaciated or thin, with 2% having severe emaciation; 25% were underweight, with 9% having severe underweight [6].

The results of a study conducted in the VAKU health zone in the DRC found a prevalence of severe acute malnutrition of 3.8%; male gender and age between 12 and 24 months were associated with this high prevalence (4.7%). Potential determinants of the occurrence of severe acute malnutrition (SAM) in this health zone included failure to follow the recommended feeding schedule, inadequate complementary feeding, a monthly household income of ≤$30, and non-attendance at the child health clinic [7].

In Tshopo Province, there is a lack of evidence regarding the knowledge of mothers and caregivers of children aged 6 to 59 months about malnutrition, particularly in the broader context of inadequate nutrition among infants and young children. For this reason, this study was conducted to assess the knowledge of mothers and caregivers of children aged 6 to 59 months regarding malnutrition and preventive measures.

II. MATERIAL ANDT METHODS

Study Site

The study was conducted in the rural health zone of Bengamisa, Tshopo Province, DRC.

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Study Population

All children aged 6 to 59 months living in the Bengamisa health zone.

Study Design and Period

A descriptive cross-sectional study was conducted in the Bengamisa health zone, Tshopo Province, from April 12 to June 25, 2025. Échantillonnage

Sampling

Our sample size was calculated using the Schwartz formula as follows: $n = Z * p * q / d^2$.
Defining p as the expected proportion of malnutrition among children under 5 years of age, estimated in this study at 10% (the WHO accepts a prevalence estimate between 5% and 20% based on the results of previous studies in the DRC) [8]; with a Z-score of 1.96 and a margin of error of 5%, and an anticipated non-response rate of 10%, the minimum sample size was 167 households. Thus, to increase the sample size and improve precision, we selected the same sample size in villages with community gardens as in villages without community gardens.

We combined stratified and systematic random sampling techniques, which were carried out as follows:

- Stratification of the ZS into four supervision areas (grouping of ASs based on criteria of geographic, economic, and cultural proximity).
- Simple random selection of two ASs in each stratum (total of 8 ASs);
- Selection of two villages within each selected AS, including one village with plot gardens and one village without plot gardens (total of 16 villages).
- At the village level, we selected households using a systematic sampling technique designed as follows: enumeration of all households (N), calculation of the sampling interval (k), random selection of the first household to be surveyed, followed by the addition of sampling intervals until the required number of households for each village was reached.Les ménages enquêtés étaient répartis de manière équitable entre les 16 villages en raison de 21 ménages par villages. In each household, only one target child was selected. In households with more than one target, one child was selected at random.

Data Collection Methods

Data were collected from the children's mothers/caregivers using a guided interview technique based on a pre-tested questionnaire, which was entered into a smartphone via the Kobo Collect platform to record the children's data.

Data Analysis Methods

Data were entered into Excel and imported into STATA 13 for analysis. Categorical variables were

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described as proportions, and quantitative variables as Mean ± SD and median (Maximum – Minimum), depending on whether the distribution is symmetric or not.

Administrative and Ethical Considerations

The study protocol was approved by the Ethics Committee of the University of Kisangani, and fieldwork permits were obtained from the Provincial Health Department and the Health Zone.

Participation in the study was voluntary and required the signing of an informed consent form. The anonymity of the data collected was guaranteed at all stages of the study, from collection to dissemination.

III. RESULTS

Table 1. Characteristics of the respondents

Variables N=384	Terms and conditions	Fréquency	Percentage
Age (Mean ±SD) years	26.1 ± 5.7		
	Under 18	12	3
	18 to 24 ans	148	39
	25 and more	224	58
Level of education	None	44	11
	Primary	148	39
	Secondary	184	48
	Tertiary/ Higher	8	2
Marital status	Single	70	18.2
	Maried	308	80.2
	Divorced	6	1.6
Profession	Housewife	358	93
	Retailer	12	3
	Civil servant	14	4
Number of people in the household (Means ±SD)	8 ± 4.6		
Number of children under 5 Median (Min-Max)	2 (1 – 3)		

The average age of mothers/caregivers was 26.1 ± 5.7 years; more than half were 25 years of age or older; the most common educational level was high school, and the majority were “married” and “homemakers.” The average household size was 8 ± 4.6, and the median number of children under 5 was 2.

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Table 2. Awareness and Understanding of Malnutrition

Variables N=384	Terms and conditions	Fréquency	Percentage
Educated on child nutrition	Yes	112	29
	No	272	71
News chanel N=112	Town crier /Motivator	34	30
	Healthcare staff	84	75
	Community Center	42	38
	Radio	24	21
	Television	4	4
Causes of malnutrition	Poor diet	364	95
	Disease	136	35
	Food restriction alimentaires	50	13
	Others	18	5
Nutritional diseases	Kwashiorkor	326	85
	Stunted growth	64	17
	Growth retardation	90	23
	Obesity	76	19
	Others	26	7
Prevention of malnutrition	follow-up medical examen for children	44	11
	Eat well	292	76
	Farming	82	21
	Livestock farming	38	10
	Have financial resources	272	71
	Preventing Intestinal Worms	158	41
	Vaccinating Children	72	19
	Worm treatment	130	34
	Others	12	3
Comprehensive knowledge	Good	92	24
	Low	292	76

Table 2 shows that fewer mothers were aware of malnutrition, with healthcare providers being the most commonly cited source of information. Kwashiorkor was the most widely recognized clinical form of malnutrition, and proper nutrition and financial resources were identified as the primary means of preventing malnutrition. Overall awareness of malnutrition was high among nearly a quarter of the respondents.

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DISCUSSION

The results of this study show that 29% of mothers were aware of malnutrition, with healthcare providers being the most common source of information. Undernourishment was cited as the cause of malnutrition by nearly all respondents (95%). Kwashiorkor remains the most widely recognized clinical form of malnutrition (75%); proper nutrition (76%) and financial resources (71%) were the most frequently cited means of preventing malnutrition. Overall knowledge of malnutrition was adequate among 24% of respondents. This level of knowledge remains a cause for concern given the requirements for nutritional prevention.

These findings are consistent with those of the World Health Organization, which emphasizes that in many low-resource countries, gaps in nutrition education are a major determinant of child malnutrition, as access to nutritional information remains limited, especially in rural areas [7]. Similarly, in the Democratic Republic of the Congo, Nutrition Program national (NUTPN) has shown that the proportion of mothers with adequate knowledge remains low, particularly in rural areas [6].

The high proportion of mothers identifying undernutrition (95%) as the main cause is consistent with the findings of Black et al., who indicate that inadequate food intake accounts for a large portion of the global burden of malnutrition, particularly in developing countries [9]. However, the low recognition of indirect causes (disease, hygiene, inadequate dietary practices) reflects an incomplete understanding, as previously noted by UNICEF [10].

Furthermore, the predominance of kwashiorkor as the known form reflects a perception based on its clinical visibility. According to Smith et al., chronic forms such as stunting are often underestimated because they are less apparent [11].

Mothers' generally limited knowledge of children's nutritional needs can be explained by the fact that, in our community, child growth monitoring is linked to vaccination—an activity that is well known and highly visible due to the numerous vaccination campaigns. When vaccination coverage is low, it also impacts child growth monitoring, and once the routine vaccination period ends (at 23 months), child growth monitoring activities are virtually nonexistent in most health centers. Communication strategies promoting child growth monitoring and vaccination units must be developed to raise awareness of the preschool checkup objectives.

The low level of knowledge limits the adoption of proper nutritional practices, particularly with regard to dietary diversification, hygiene, and access to health care. It thus constitutes a major obstacle to the effective prevention of malnutrition. This suggests that current interventions remain insufficient, hence the need to strengthen communication strategies focused on behavior change.

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CONCLUSION

Mothers and caregivers of children aged 6 to 59 months in the Bengamisa Health Zone have limited knowledge of the causes of malnutrition and preventive measures. Large-scale health education interventions are essential to improve knowledge and promote best nutritional practices.

Conflict of interest: none

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