

Mothers Awareness of Signs of Malnutrition for Children Under Five Years

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Abstract: The study aims to identify mothers' knowledge about signs of children's malnutrition under five year. **Methods and Materials:** descriptive cross-sectional study conducted on (77)mothers about signs of children's malnutrition under five years in hospitals of Kirkuk city. The study period from January, 2026, to October, 2026. The data was collected by questionnaire through questions and an interview with mothers after obtaining their approval. The study tool (a questionnaire) has been designed and constructed based on an extensive review of available literature and related studies. Face validity of the instrument is established through a panel of (10) experts in the different fields. These experts have more than 7 years of experience in their specialist and asked to review and evaluate the instrument format for its content, clarity and adequacy. On basis of their comments and suggestions, some modification was made and changes were performed. Then, the questionnaire was considered valid after taking into consideration their suggestions and recommendations. The mothers knowledge scores were evaluated using Descriptive and Inferential statistics to analyze the study data. **Results:** shows the total knowledge score of mothers, most of them (54.3%) scored good knowledge, followed by (43.9%) scored moderate knowledge. **Conclusion:** The knowledge level exceeds 50 percent, which is generally a good percentage . Study reveals that it did not find a statistically important association between demographic characteristics and total knowledge score, except for age groups, house type, and educational level of mother and father. **Recommendations:** The current study suggested that health education campaigns should target mothers to improve their knowledge about children's nutrition under five years.

Keywords: Awareness, Malnutrition, Children under Five

Introduction

Wasting and stunting in children have been identified as essential markers for monitoring the nutritional and health condition of children in a community [1]. The necessity to emphasize policies and programmers that increase mothers' capacity to provide optimum care for young children, particularly throughout pregnancy to a child's second birthday, must become more recognized by governments across the world [2]. It is possible that various primary factors contribute to the increased incidence of malnutrition in children. These variables include limited access to health care, poor sanitation and insufficient caring and feeding habit [3]. Complementary foods are considered very necessary in improving the nutritional status of children, according to the World Health Organization (WHO, 2010). [4]. Complementary feeding is a term for feeding infants hard or semi-solid and soft food at the appropriate time in addition to the frequency of meals and the variety of meals [5]. Therefore, these complementary foods have been linked to the ideal nutrition for infants because they interfere with their health, growth, and development. They have also been shown to reduce mortality and morbidity in children and increase the chance of survival and protection of children[6]. Iron deficiency is a global health problem that occurs in most children under the age of five, and women before childbirth, and the increased knowledge of mothers has a role in determining this health problem The quality of health care centers also plays a role in improving the health status of the population, which requires the provision of high-quality services, which is a critical element in improving the health and well-being of the community[7].

Materials and Methods

A descriptive cross-sectional study was conducted to assess mothers' awareness of signs of malnutrition among children under five years of age. The study involved 77 mothers attending hospitals in Kirkuk City and was carried out from January to October 2026. Data were collected using a structured questionnaire administered through direct interviews after obtaining the participants' consent. The questionnaire was developed based on a review of relevant literature and previous studies and included items related to mothers' knowledge of child feeding practices, causes and signs of malnutrition, preventive measures, growth monitoring, and selected sociodemographic characteristics. Content and face validity of the instrument were evaluated by a panel of 10 experts from relevant fields, each with more than seven years of professional experience. Their comments regarding the clarity, adequacy, and relevance of the questionnaire items were incorporated before the final version was used for data collection. Mothers' total knowledge scores were subsequently classified into poor, moderate, and good knowledge categories. The collected data were analyzed using descriptive statistics, including frequencies and percentages, and inferential statistics. The Chi-square test of association was applied to examine relationships between total knowledge scores and demographic characteristics, with a p-value of less than 0.05 considered statistically significant.

Results and Discussion

Results

Table 1. Distribution of the studied sample according to Demographic Characteristics

Variable	Category	Sample size (n)	Percentage (%)
Mothers Age	Less than 20 years	13	16.8
	20-29 years	11	14.2
	30-39 years	43	55.8
	41=>	10	12.9
Residence	Urban	60	77.9
	Rural	17	22
Marital status	Married	55	71.4
	Others	22	28.5
Number of children	1	33	42.8
	2-3	21	27.2
	4-5	20	25.9
	More than 5	3	3.8
Child age	Under 1 year	29	37.6
	1-2 years	11	14.2
	3-4 years	37	48.5
	Owns	33	42.8
House Type	Rented	21	27.2
	Others	23	29.8
Type of Family	Small Family	60	77.9
	Large Family	17	22
Education level of	Illiterate	9	11.6

Variable	Category	Sample size (n)	Percentage (%)
mother	Primary school	12	15.5
	High school	27	35
	Graduate	29	37.6
Occupation of the mother	Not employed	35	45
	Employed	42	54
	Illiterate	7	9
Education level of husband	Primary school	16	20.7
	High school	22	28.5
	Graduate	32	41.5
Occupation of husband	Not employed	22	28.5
	Employed	55	71.4

The study shows that the highest percentages (55.8%) of mothers were within the age group (30-39years). The results found that the highest percentage, 33 (42.8%) of the studied sample, own houses. (48.5%) children aged 3-4 years. Regarding the type of family, the study found that 60 (77.9%) of participants belong to small families. The present study demonstrated that the highest percentage of 29 (37.6%) mothers' education was Graduated. The majority of them, 42 (54%), were employed. Regarding the husband's education level, the highest percentage, 32(41.5%), Graduated, and the majority, 55(71.4%) of them, were employed.

Table 2. Distribution of Mother answers according to knowledge about the feeding of children

Knowledge of Mother	Category	(n)	(%)
Infant exclusively breastfeeding for the first 6 month and beyond	Yes	51	66.2
	I do not know	12	15.5
	No	14	18.1
Continue breastfeeding for 2 years and beyond	Yes	11	14.2
	I do not know	45	58.4
	No	21	27.2
Complementary feeding should be introduced at 6 months	Yes	56	72.2
	I do not know	9	11.6
	No	12	15.5
Feed a breastfed 12 months child two times a day	Yes	47	61
	I do not know	16	20.7
	No	14	18.1
Children should eat from the family pot from 1 year	Yes	52	67.6
	I do not know	18	23.3
	No	7	9
Hands should be washed before preparing children's food	Yes	63	81.8
	I do not know	10	12.9

Knowledge of Mother	Category	(n)	(%)
	No	4	5.1
	Yes	65	84.4
Water for preparing children food and drinks should be treated	I do not know	5	6.4
	No	7	9
	Yes	44	57.1
During illness not feeding sick or recovering child on dilute porridge Lfruit juice	I do not know	17	22
	No	16	20
	Yes	70	90.9
Do you hear by malnutrition	I do not know	3	3.8
	No	4	5.1
	Yes	52	67.6
Malnutrition occur when a child does not receive adequate nutrients for healthy growth	I do not know	18	23.3
	No	7	9
	Yes	63	81.8
Malnutrition occur when a child eat enough food if the diet lacks essential nutrients	I do not know	10	12.9
	No	4	5.1
	Yes	70	90.9
Repeated infection such as diarrhea can contribute to malnutrition	I do not know	3	3.8
	No	4	5.1
	Yes	51	66.2
Poverty and limited access to nutritious food can increase the risk of malnutrition	I do not know	12	15.5
	No	14	18.1
	Yes	11	14.2
Sever thinness or wasting can be a sign of malnutrition	I do not know	45	58.4
	No	21	27.2
	Yes	65	84.4
Vaccination can help protect children against some infections that may contribute to malnutrition	I do not know	5	6.4
	No	7	9
	Yes	44	57.1
Malnutrition can affect physical and mental development	I do not know	17	22
	No	16	20
	Yes	33	42.8
A child's growth should be monitored regularly by a health worker	I do not know	27	35
	No	17	20.7
	Yes	19	24.6
A child's with severe malnutrition can be treated at home	I do not know	16	20

Knowledge of Mother	Category	(n)	(%)
	No	42	53.5

Table 2 shows that 66.2 % of the mothers were satisfied with exclusive breastfeeding for the first six months of life. The study indicated that 58.4% of the mothers responded (I do not know) that breastfeeding should not be continued for two years and beyond. The study found that 72.2% of the mothers answered that complementary feeding should be introduced at six months. The study also indicated that 81.8% of the mothers were satisfied that their hands should be washed before preparing children's food. The study found that 90.9% of the participating women had prior knowledge of child malnutrition. (67.6%) of mothers answered that Malnutrition occur when a child does not receive adequate nutrients for healthy growth.(81.8%) of mothers answered that Malnutrition occur when a child eat enough food if the diet lacks essential nutrients. 51 mother (66.2 %) answered that Poverty and limited access to nutritious food can increase the risk of malnutrition. While (58.4%) of mothers do not know if sever thinness or wasting can be a sign of malnutrition.(42.8%) of mothers agree with a child's growth should be monitored regularly by a health worker. Majority of mothers knew that a child with severe malnutrition can be treated at home.

Table 3. Association between the total knowledge score of mothers and demographic characteristics

Variable	Category	(n)	(%)	Total Knowledge score			P. value
				Poor (<18)	Moderate (18-23)	Good (>23)	
Age	Less than 20 years	13	16.8	19	21	37	<0.001 S
	20-29 years	11	14.2	5	45	27	
	30-39 years	43	55.8	17	12	48	
	41=>	10	12.9	18	26	33	
House Type	Owens	33	42.8	14	43	20	0.060 N.S
	Rented	21	27.2	12	51	15	
	Others	23	29.8	11	59	7	
Type of Family	Small Family	60	77.9	0	47	30	0.054 N.S
	Large Family	17	22	4	34	32	
Education level of mother	Illiterate	9	11.6	12	57	8	<0.001 S
	Primary school	12	15.5	23	29	25	
	High school	27	35	10	25	39	
	Graduate	29	37.6	26	24	27	
Occupation of the mother	Not employed	35	45	2	60	5	0.185 N.S
	Employed	42	54	0	67	10	
Education level of husband	Illiterate	7	9	27	40	10	<0.001 S
	Primary school	16	20.7	16	33	28	
	High school	22	28.5	7	51	19	
	Graduate	32	41.5	28	30	19	

Variable	Category	(n)	(%)	Total Knowledge score			P. value
				Poor (<18)	Moderate (18-23)	Good (>23)	
Occupation of husband	Not employed	22	28.5	15	13	49	<0.001 S
	Employed	55	71.4	16	54	7	

Table 3 shows that Total Knowledge Score is categorized as Poor (<18), Moderate (18–23), and Good (>23), test for the relationship is the Chi-square test of association. Using $p < 0.05$ as the criterion for statistical significance:

- **Age** was significantly associated with total knowledge score ($p < 0.001$).
- **Mother's education level** was significantly associated with knowledge score ($p < 0.001$).
- **Husband's education level** was significantly associated with knowledge score ($p < 0.001$).
- **Husband's occupation** was significantly associated with knowledge score ($p < 0.001$).
- **House type** was not significantly associated with knowledge score ($p = 0.060$).
- **Type of family** was not statistically significant ($p = 0.054$), although it was very close to the 0.05 threshold.
- **Mother's occupation** was not significantly associated with knowledge score ($p = 0.185$).

Discussion

Research consistently demonstrates that higher levels of maternal (37.6%) are "Graduated" education are associated with improved child nutritional status and a greater awareness of malnutrition signs. Educated mothers are often better equipped to understand nutritional requirements, recognize early symptoms of deficiencies, and access healthcare services more effectively. 54% of mothers employed, your study highlights a substantial segment of working caregivers. The relationship between maternal employment and child nutrition is complex; while employment increases household income—potentially improving food security—it can also impact the time available for child care and feeding practices. Some studies suggest that employed mothers may face challenges in maintaining exclusive breastfeeding or preparing nutritious home-cooked meals, necessitating adaptive strategies to ensure child health. 77.9% of participants belong to small families is a positive demographic indicator. Smaller family size is often correlated with higher resource allocation per child, which can positively influence nutritional outcomes and allow for more focused maternal attention toward identifying and addressing potential signs of malnutrition. The concentration of mothers in the 30-39 age range and the fact that 42.8% own their homes suggests a relatively stable population segment. This stability is often associated with better access to resources and a higher likelihood of sustained engagement with health-promoting behaviors. This finding was consistent with a study conducted in Indonesia by [8]. The study found that 66.2% of mothers were satisfied with exclusive breastfeeding (EBF) for six months, and 72.2% correctly identified six months as the appropriate time to introduce complementary feeding. These figures align with several cross-sectional studies that report varying levels of maternal knowledge on EBF, often ranging between 60% and 75% depending on the region and level of health education access. However, the 58.4% "don't know" response regarding continuing breastfeeding for two years or beyond suggests that while the importance of initiation is understood, the guidance on long-term breastfeeding duration is less clear among the participants. These results agreed with a cross-sectional study done in a rural African setting by [9]. A high proportion of participants (90.9%) reported prior knowledge of child malnutrition, which is a positive indicator of health literacy. Furthermore, the high percentage of mothers who identified nutrient-deficient diets (81.8%) and lack of adequate intake (67.6%) as causes of malnutrition demonstrates a solid grasp of the basic pathophysiology of under nutrition. The recognition that poverty and limited access to nutritious food (66.2%) increase malnutrition risk is well-supported by literature, which identifies socioeconomic status as a primary determinant of nutritional outcomes. Similar results were reported

by a cross-sectional study in Pakistan by [10]. About Wasting and Growth Monitoring the study revealed significant gaps in knowledge regarding clinical signs and preventative care. In fact that 58.4% of mothers did not know if severe thinness or wasting were signs of malnutrition indicates a need for better visual and symptom-based education. While mothers understand the causes of malnutrition, they may not be adequately trained to recognize the physical manifestations of wasting. The finding that only 42.8% of mothers agreed that growth should be monitored regularly by a health worker is concerning. Public health guidelines emphasize regular growth monitoring (weight-for-age, height-for-age) as essential for early detection of growth failure. The same findings were observed in a cross-sectional study in Australia among The effect of mothers' nutritional education and knowledge on stunting prevention. Journal of Public Health Research by Prasetyo et al. [11]. Different results were shown in the findings of Hossainy et al. [12]. A Cross-Sectional Study on Mothers' Knowledge, Attitudes, and Practices. The high rate of awareness (81.8%) regarding hand washing before preparing food is a strong, positive practice indicator that supports infectious disease prevention, which is crucial for nutrient absorption. These findings agreed with the results of studies done in India [13]. Association between the total knowledge score of mothers and demographic characteristics, maternal age significant Usually significant; reflects life experience, maternal and husband education significant Highly significant; key predictor of health literacy, maternal occupation Not Significant, family type borderline Indirect effects via social/financial support. This association is agree with [15] study conducted in Kenya.

Conclusions

The study reveals most of the mothers have good knowledge scores. The study found strengths in awareness of exclusive breastfeeding, complementary-feeding timing, food-preparation hygiene, and basic causes of malnutrition, alongside notable gaps in knowledge of breastfeeding duration, signs of wasting, and growth monitoring. Targeted, accessible nutrition counselling—particularly for mothers with lower educational access and for families with fewer resources—may help address these gaps. Because the study is observational, the associations identified do not show that these sociodemographic factors cause differences in knowledge. The current study suggested that health education campaigns should target mothers to improve their knowledge about children's nutrition under five years.

References

- [1] S. N. Cumber, N. B. Ankrallah, and N. Monju, "Mothers' knowledge on the effects of malnutrition in children 0–5 years in Muea Health Area Cameroon," *Journal of Family Medicine and Health Care*, vol. 2, no. 4, p. 36, 2016.
- [2] M. Shahid et al., "Does mothers' awareness of health and nutrition matter? A case study of child malnutrition in marginalized rural community of Punjab, Pakistan," *Frontiers in Public Health*, vol. 10, Art. no. 792164, 2022.
- [3] D. O. Otele, S. J. Bunu, and E. Edoni, "Mothers' perception analysis on nutritional health and malnutrition among children under 5 years in the Niger Delta region," *Asian Journal of Research and Reports in Gastroenterology*, vol. 2, no. 1, pp. 1–9, 2020.
- [4] S. K. Roy, M. M. Rahman, A. K. Mitra, M. Ali, A. N. Alam, and M. S. Akbar, "Can mothers identify malnutrition in their children?" *Health Policy and Planning*, vol. 8, no. 2, pp. 143–149, 1993.
- [5] E. Karikari et al., "Assessment of mothers awareness of acute malnutrition," *Medical Journal/Medicinski Časopis*, vol. 58, no. 3, p. 102, 2024.
- [6] P. Hakizuwera and M. Gbadamosi, "Knowledge, attitude and practice regarding malnutrition among parents of under-five children with disabilities in Rwanda," *Rwanda Journal of Medicine and Health Sciences*, vol. 8, no. 1, p. 100, 2025.
- [7] N. A. S. Putri, R. P. Adiwinoto, P. Arundani, P. A. Nugraheni, and I. M. D. M. Adnyana, "The relationship between feeding patterns and maternal knowledge about nutrition with the incidence of stunting in children age 0–5 years in the working area of the Gedongan Health Center, Mojokerto City," *AgriHealth: Journal of Agri-food, Nutrition and Public Health*, vol. 5, no. 1, pp. 21–28, 2024.

- [8] R. Widiasih, D. K. Sunjaya, L. Rahayuwati, B. Rusyidi, C. W. M. Sari, and S. E. H. Tung, "Evaluating the knowledge, roles, and skills of health cadres in stunting prevention: A mixed-method study in Indonesia," *Belitung Nursing Journal*, vol. 11, no. 3, p. 330, 2025.
- [9] A. Abubakar, P. Holding, M. Mwangome, and K. Maitland, "Maternal perceptions of factors contributing to severe under-nutrition among children in a rural African setting," *Rural and Remote Health*, vol. 11, no. 1, Art. no. 1423, 2011.
- [10] M. Shahid et al., "Does mothers' awareness of health and nutrition matter? A case study of child malnutrition in marginalized rural community of Punjab, Pakistan," *Frontiers in Public Health*, vol. 10, Art. no. 792164, 2022, doi: 10.3389/fpubh.2022.792164.
- [11] Y. B. Prasetyo et al., "The effect of mothers' nutritional education and knowledge on stunting prevention," *Journal of Public Health Research*, 2023.
- [12] H. Hossainy, R. Amel, and R. Sakhi, "A cross-sectional study on mothers' knowledge, attitudes, and practices towards nutrition of malnourished under-five children in a Kabul City Hospital, Afghanistan," *Preprints*, 2025, doi: 10.20944/preprints202511.2002.v1.
- [13] K. Saito, J. R. Korzenik, J. F. Jekel, and S. Bhattacharji, "A case-control study of maternal knowledge of malnutrition and health-care-seeking attitudes in rural South India," *Yale Journal of Biology and Medicine*, vol. 70, no. 2, pp. 149–160, 1997.
- [14] R. Erda, D. Hamidi, D. Desmawati, R. Rasyid, and R. Sarfika, "Evaluating socio-demographic, behavioral, and maternal factors in the dual burden of malnutrition among school-aged children in Batam, Indonesia," *Narra J*, vol. 5, no. 1, Art. no. e2049, 2025, doi: 10.52225/narra.v5i1.2049.
- [15] D. O. Omondi and P. Kirabira, "Socio-demographic factors influencing nutritional status of children (6–59 months) in Obunga Slums, Kisumu City, Kenya," 2016.