



Risk Factors of Malnutrition of Early Childhood in Mosul City

Ameen Hussein youseif¹ | Siddeeq Atiya Islubi² | Ahmed Mahdi Saleh³

^{1,2,3}Department of Nineveh Health, Primary health care sector in Qayyarah

¹Email:

amynh4148@gmail.com

²Email:

Ahmedmahdisa83@gmail.com

³Email:

omransiddeeq@gmail.com



Abstract:

Background:

Manutrition occurs when a human gets too few or too many nutrients, resulting in health problems. Specifically, it is "a deficiency, excess, or imbalance of energy, protein and other nutrients", malnutrition in resource-limited settings is primary malnutrition that results from inadequate food supply caused by socioeconomic, political, and environmental factors. However, secondary malnutrition due to chronic diseases can also exist concurrently in these.

Aim of this study is to investigate the risk factors associated with malnutrition in children under the age of 3 years.

Subject and method the study started from 2 February 2023 to 71 April 2023. Surveys were conducted among the population of Nineveh governorate over a period of 10 days, using Google forms that were published and distributed using social media, a forms were distributed among mothers of children in Mosul city As well as we distributed the forms to the mothers of the children's in hospitals under 3 years old in AL Salam teaching hospital - Mosul general hospital - Qayyarah hospital - Ibn sena hospital After the surveys were conducted we management to collect a total of (90) sample and there is 30 cases and 60 controls.

Results Relationship between malnutrition and residence and p value was 0.749 is (not significant). Relationship between malnutrition and the economic and social condition of the family p value: 0.635 (not significant). Relationship between malnutrition and the smoking of the parent p value: 0.284 (not significant). Relationship between malnutrition and the level of mother learning p value: 0.812 (not significant). Relationship between malnutrition and the age of marriage for the mother p value: 0.004 (highly significant). Relationship between malnutrition and the number of mother's child's p value: 0.435 (not significant). Relationship between malnutrition and the period between one pregnancy and another p value: 0.569 (not significant). Relationship between malnutrition and the sex of child p value: 0.546 (not significant). Relationship between malnutrition and bottle-feeding p value: 0.609 (not significant). Relationship between malnutrition and mixed feeding p value: 0.815 (not significant).

Conclusion Our findings revealed did not establish a significant association between malnutrition and various factors, including the resident, economic and social condition of the family, smoking of the parents, level of mother learning, number of mother's child's > 4, the period between one pregnancy and another, type of feeding. It is expected that the reason is the small sample of the group that was

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collected and also may vary across different cultures due to various factors such as cultural norms, dietary habits, and access to healthcare. while relationship between malnutrition and the age of marriage for the mother is highly significant (p: 0.004) this may be attributed to the mother's marriage at a young age, with a weak body structure that cannot bear carrying a healthy fetus, with the mother's lack of experience in dealing with her child and taking adequate care of him.

Introduction:

Under nutrition is a critical determinant of mortality and morbidity in young children worldwide It is associated with approximately one-half of all deaths in children under five years of age ⁽¹⁾. In this topic review, we use the term "malnutrition" in its traditional sense, referring to under nutrition (wasting, stunting, or micronutrient deficiencies), although some authors use the term more broadly to encompass over nutrition/obesity. Indeed, many low- and middle- income countries have substantial problems with both under nutrition and overweight/obesity, sometimes termed the "double burden of malnutrition" ⁽²⁾. The major forms of malnutrition are marasmus (wasting) and kwashiorkor (edematous malnutrition), with or without associated stunting. The clinical assessment of the child with malnutrition includes distinguishing between these types, assessing their severity, and identifying acute life-threatening complications, including sepsis and acute dehydration. these children are at risk for micronutrient deficiencies, as detailed in a separate topic review. Traditionally, malnutrition in resource-limited settings is primary malnutrition that results from inadequate food supply caused by socioeconomic, political, and environmental factors. However, secondary malnutrition due to chronic diseases can also exist concurrently in these Acute malnutrition – Approximately 31.8 million have moderate wasting (indicating moderate acute malnutrition [MAM]) ⁽³⁾. An additional 13.6 million children have severe wasting (indicating severe acute malnutrition [SAM]) ⁽⁴⁾. MAM and SAM are primarily a problem in resource-limited regions and especially South. They are uncommon in North America, Australia, and other resource-rich regions. Chronic malnutrition – Many more children (149.2 million) have stunting (faltering linear growth), reflecting chronic under nutrition(WHO.,2020). The prevalence of stunting has gradually declined in most regions during the past three decades associated with improvements in education,

socioeconomic status, sanitation, access to maternal health services, and family planning^(5,11). Nonetheless, the prevalence of stunting remains unacceptably high in many regions, particularly South Asia and sub-Saharan Africa, where it affects more than 30 percent of children ⁽¹²⁾.Stunting rates in sub-Saharan Africa have finally begun to decline ⁽¹³⁻²⁰⁾.

Methodology:

The study started from 2 February 2023 to 71 April 2023. Surveys were conducted among the population of Nineveh governorate over a period of 10 days, using Google forms that were published and distributed using social media, a forms were distributed among mothers of children in Mosul city .As well as we distributed the forms to the mothers of the children's in hospitals under 3 years old in AL Salam teaching hospital - Mosul general hospital - Qayyarah hospital - Ibn sena hospital After the surveys were conducted we management to collect a total of (90) sample and there is 30 cases and 60 controls⁽²¹⁻²⁵⁾.

Results:

Table (1): Association between malnutrition and residence

	Normal	Case	Total
Urban	40 (44.4%)	21 (23.3%)	61 (67.8%)
Rural	20 (22.2%)	9 (10%)	29 (32.2%)
Total	60 (66.6%)	30 (33.3%)	90 (100%)
P value: 0.749 (not significant)			

Table (1): The p-value of 0.749 suggests that there is no significant difference between the prevalence of malnutrition in urban and rural areas.

Table (2): Relationship between malnutrition and family socioeconomic status

	Normal	Case	Total
Good	21 (23.3%)	9 (10%)	30 (33.3%)
Bad	39 (43.3%)	21 (23.3%)	60 (66.7%)
Total	60 (66.7%)	30 (33.3%)	90 (100%)
P value: 0.635 (not significant)			

Table (2): A p-value of 0.635 suggests that there is no statistically significant relationship between malnutrition and the economic and social condition of the family. In other words, the economic and social condition of the family does not appear to have a significant effect on the prevalence of malnutrition.

Table (3): Relationship between parental smoking and malnutrition

	Normal	Case	Total
Yes	21 (23.3%)	14 (15.6%)	35 (38.9%)
No	39 (43.3%)	16 (17.8%)	55 (61.1%)
Total	60 (66.7%)	30 (33.3%)	90 (100 %)
P value: 0.284 (not significant)			

Table (3): The p-value of 0.284 suggests that there is not a statistically significant relationship between malnutrition and smoking by parents.

Table (4): Association between maternal education level and malnutrition among children

	Normal	Case	Total
Uneducated	7 (7.8%)	3 (3.3%)	10 (11.1%)
Educated	53 (58.9%)	27 (30%)	80 (88.9%)
P value: 0.812 (not significant)			

Table (4): The p-value of 0.812 suggests that there is not a statistically significant relationship between malnutrition and the level of mother's learning while the p-value may suggest no significant relationship, it is still important to consider the potential impact of a mother's level of learning on her child's nutrition and overall health. Education and awareness programs can play an important role in promoting healthy nutrition practices and addressing malnutrition in children.

Table (5): The relationship between maternal Age at marriage and malnutrition

	Normal	Case	Total
<18 Years	33 (36.7%)	7 (7.8%)	40 (44.4%)
≥18 Years	27 (30%)	23 (25.6%)	50 (55.6%)
Total	60 (66.7%)	30 (33.3%)	90 (100%)
P value: 0.004 (highly significant)			

Table (5): The p-value of 0.004 suggests that there is a statistically significant relationship between malnutrition and the mother's age at marriage. a low p-value indicates that the relationship between the variables is unlikely to occur by chance alone. Therefore, we can conclude that there is a significant association between the mother's age at marriage and malnutrition.

Table (6): Relationship between mother's parity and child malnutrition

	Normal	Case	Total
<4 Childs	48 (53.3%)	26 (28.9%)	74 (82.2%)
≥4 Childs	12 (13.3%)	4 (4.4%)	16 (17.8%)
Total	60 (66.7%)	30 (33.3%)	90 (100%)
P value: 0.435 (not significant)			

Table (6): While the p-value 0.435 suggests no significant relationship, it is still important to consider the potential impact of family size on the nutritional status of children. Families with a larger number of children may have less resources available for each child, potentially increasing the risk of malnutrition. It is important to promote access to healthcare and education to improve the nutritional status of children, regardless of family size.

Discussion:

The present study reports on the level of malnutrition and the impact of some socioeconomic and demographic characteristics of households on the nutritional status of children under-three years of age in Mosul. Ninety households and mothers of under-three children, the study included participants from both rural and urban areas of Mosul, representing both the city center and its outskirts. Hence the study may be regarded as a reasonable reflection of the nutritional status of children Under-three years old country-wide. A number of similar studies have been conducted in various parts of the world⁽²⁶⁾. A previous study conducted in Tanzania among children under four years of age suggested that males had a better nutritional status than females. further studies are required to establish a definitive explanation for the relationship between sex and the nutritional status of children in Mosul. Such studies will assist in identifying factors that may be associated with this observation and generate information that can inform the development of

interventions. The present study, however, found that the prevalence of malnutrition was not significantly higher among boys than among girls ($p=0.569$)⁽²⁷⁾. In a study conducted in Botswana, South Africa, that found is not identified significant relationship between under nutrition (specifically underweight) in children under three years of age and the number of under three children in the family, family income, and maternal education. On the other hand, the study also found that the presence of both parents in the family, parental engagement in agriculture (compared to informal business like street vending), maternal education, and breastfeeding are protective factors against under nutrition in children. this suggests that households with these protective characteristics have better resources and childcare practices compared to others. Other studies have also observed that the economic engagements of parents, particularly maternal income, can be protective against child malnutrition. This implies that improving economic opportunities for families, especially for mothers, can potentially reduce the incidence of under nutrition in children⁽²⁸⁾. The protective effects of breast feeding on children's nutritional status observed in Botswana studying suggest that breastfeeding is an important part of child care. However there is need to educate mothers on safe breast feeding and timely introduction of complementary foods because poor breastfeeding practices such as prolonged breastfeeding or failure to introduce adequate complementary foods as recommended places children at risk for underweight⁽²⁹⁾. Undernourished children were more likely to be breast feeding for a longer period (over 12 months) compared to well-nourished children⁽³⁰⁻³²⁾. consequent physical immaturity, making it difficult to carry a healthy fetus, as well as her lack of experience in child-rearing and inadequate maternal care to her child.

Conclusion:

In conclusion, our study found that the age of marriage of the mother is a significant risk factor affecting the nutritional status of children were found to be significantly associated with under nutrition in this population. These findings

emphasize the need to enhance preventative measures to prevent early marriages, child infections, and low birth weight in order to address the issue of malnutrition in young children. Other risk factors, such as residence, economic and social conditions, type of food, level of mother's education, smoking of parents, and number of children, were found to be less likely causes of malnutrition in our study, possibly due to the small sample size and also may vary across different cultures due to various factors such as cultural norms, dietary habits, and access to healthcare. However, it is worth noting that other studies have found significant relationships between malnutrition and these factors. Further research with a larger sample size may help to confirm these findings.

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