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Prevalence of malnutrition among children under five years in Babylon Government, Iraq

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***Abstract*---**Background: since 2003, Iraq's fragile geopolitical situation has harmed people's health, especially children. Some factors may have an impact on a child's nutritional status. The research goal is to determine the prevalence of malnutrition among children aged 6 to 59 months in a comprehensive sample of children in Babylon. Materials and Methods: This cross-sectional study focuses on the prevalence of malnutrition in children under the age of five at primary health care centers in Al- Hilla city's urban and rural areas. From November 1st, 2021, the research will take time until March 1st, 2022. After receiving their permission, the data was obtained using an auto-self questionnaire with a series of questions and an interview with moms and children. This interview lasts 10–15 minutes for each kid and is used to determine the prevalence of malnutrition in childhood. The prevalence of severe wasting (1.3%), underweight (1.3%), stunting (6.5%), and severe stunting (5.2%) was seen in both genders. The total prevalence of malnutrition among children under the age of five was determined to be 14.3%. Conclusion: The study concluded that there are a number of children suffering from malnutrition, which calls us to establish educational programs for mothers about a healthy diet and the prevention of disease problems that lead to malnutrition.

***Keywords*---**prevalence, malnutrition, children, dietary habits.

Introduction

Malnutrition is caused by a lack of energy, protein, and certain micronutrients. It is a widespread condition worldwide. Child malnutrition is a significant cause of death for children under the age of five, and it also deteriorates children's health, affecting their ability to access education and acquire skills. Inadequate nutrition combined with malnutrition increases the risk of death from infection and delays recovery (Mohseni et al., 2019). Children with malnutrition suffer from one or more of the following forms: wasting (weight for height), stunting (height for age), and being underweight (weight for age). This is an indicator used to measure malnutrition. It also includes the lack of macro-nutrients and micro-nutrients, which include vitamins and minerals (Ahmad et al., 2020).

While, several factors that affect malnutrition, including family size, newborn and young feeding practices, the child's gender, age, insufficient nutrients for body functions, as well as some chronic diseases, child use of medication, Children suffer from diseases, the knowledge of their mother, and some socioeconomic factors, such as parents' education level and occupation, have a significant impact on childhood nutrition (Larson-Nath & Goday, 2019).Children's malnutrition is a serious problem because its consequences continue for a lifetime and extend beyond childhood. This has short-term and long-term impacts on the children (Abera et al., 2017) A UNICEF information published in 2014 showed that the prevalence of wasting, stunting, and underweight was 8%, 25%, and 15%, respectively, in the world (Mohseni et al., 2019). In 2019, an expected 5.30 million deaths occurred before reaching the age of five, down to 9.92 million deaths under the age of five in 2000. This decrease is the result of efforts by a variety of governments and organizations in several media (Perin et al., 2022).

Aims of study

1. To determine the prevalence of malnutrition in children aged 6 to 59 months in a representative sample in Al Hilla city.
2. To see whether there's a link between malnutrition and specific demographic factors.

Research Methodology

Study design and period of Study

This is a descriptive cross-sectional study conducted on 230 children in Al Hilla city in the Babylon governorate. Data had collected during the period starting (November 1st, 2021, to march 1st, 2022).

Setting of the study

The study was conducted in the city of Al Hilla. There were six health care sectors in Babylon Governorate (Al-Musayyib, Al-Mahaweel, Al-Kuthi, Al-Hillah Al-Oula, Al-Hilla Al-Thani, Al-Hashmiyah). The search was performed in Al Hilla city centre in the first and second-sector Al Hilla. Ten primary health care centers from both

sectors were selected by multistage random sampling method to be the centers designated for the study.

Sample size

The Sample size was calculated using the method proposed by Kotrlik and Higgins, (2001) formula: $n=p*(1-p)*z^2/d^2$. For a 95 percent confidence level, the z-value was set to 1.96. The obtained sample size was determined to be 230.

Data collection method

The questionnaire is an official assessment tool used by researchers through a set of questions and an interview with mothers and children after obtaining their approval. This interview takes a time of (10–15) for each child to know the prevalence of malnutrition in children.

Anthropometric measurement for the children

Anthropometry is the most common method for determining malnutrition, assessed as stunting, underweight and wasting. These states are classified by the World Health Organization (WHO) using standard deviations for child growth standards medians (SD). A height-for-age z-score (HAZ) of less than -2 SD is considered stunting, while wasting is defined as a weight-for-height z-score (WHZ) of less than -2 SD is considered wasting, and underweight is defined as a weight-for-age z-score (WAZ) of less than -2 SD is considered underweight (WHO, 2009).

Statistical Analysis

This data was collected using a questionnaire. These data were entered into the personal computer as symbols and analyzed using the SPSS 25 statistical package. The data were presented in simple measures of frequency, mean, percentage, range (minimum and maximum values), and standard deviation values. The Pearson Chi-square test (X^2 -test) was used to determine the difference between various percentages (qualitative data). Statistical significance was considered when the P-value was equal to or less than 0.05.

Results

Socio-Demographic Characteristics of Children Under five years

Table 1 describes the participants' socio-demographic characteristics. The majority of the children in this research, 71 (30.7 %), were between 12 and 23 months. The mean age ± SD of children was 26.64±14.872 months. Females constitute more than half of 135 (58.7%) of the studied sample in the present study. the highest percentage, 180 (78.3%) of the studied sample, have owned the house. Regarding the type of family, the study found that 167 (72.6%) of children belongs to large family. The present study demonstrated that the highest percentage of 96 (41.7%) of mothers' education was primary level; the majority, 174 (75.7%), were unemployed. Regarding the father's education level, the highest percentage, 80 (34.8%), were with a primary level of education, and the majority,

124 (53.9%) of them, were not employed. This study indicated that a high percentage (96.5%) of children did not suffer from food allergies.

Table (3-1) Distribution of the studied sample according to Demographic characteristics

Socio-demographic Characteristics	Categories	No.	Percent (%)
Age group per months	<12 month	41	17.8
	12-23 month	71	30.9
	24-35 month	34	14.8
	36-47 month	44	19.1
	48-59 month	40	17.4
	Mean ±SD (Range)	26.64±14.872(6-57)	
Gender	Male	95	41.3
	Female	135	58.7
House type	Owns	180	78.2
	Rented	28	12.2
	Other	22	9.6
Type of family	Small family	63	27.4
	Large family	167	72.6
Education level of Mother	Illiterate	31	13.5
	Primary school	96	41.7
	High school	43	18.7
	Graduate	60	26.1
Occupation of the mother	Not employed	174	75.7
	Employed	56	24.3
Education level of father	Illiterate	21	9.1
	Primary school	80	34.8
	High school	65	28.3
	Graduate	64	27.8
Occupation of the father	Not employed	124	53.9
	Employed	106	46.1
Child use of medication	No	209	90.9
	Yes	21	9.1
your Child suffer from a food allergy	no	222	96.5
	yes	8	3.5
Type of food allergy	eggplant	4	1.7
	meat	2	0.9
	spices	1	0.4
	tomatoes	1	0.4

Prevalence of malnutrition among children under the age of five years

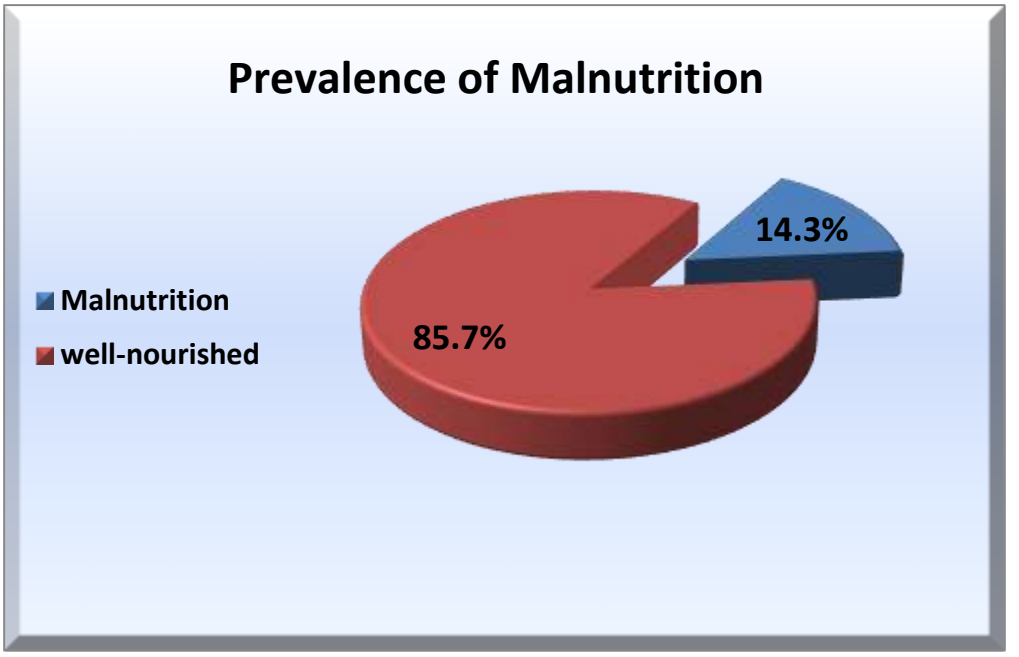

Figure 1: Total Malnutrition Prevalence in the Study Sample

Figure 1 shows the prevalence of malnutrition in the study population. The total prevalence of malnutrition among children under five was determined to be 14.3% in the present research.

Figure (2): The prevalence of wasting among the studied sample

Figure 2: In the present study, the prevalence of severe wasting in each gender was (1.3%).

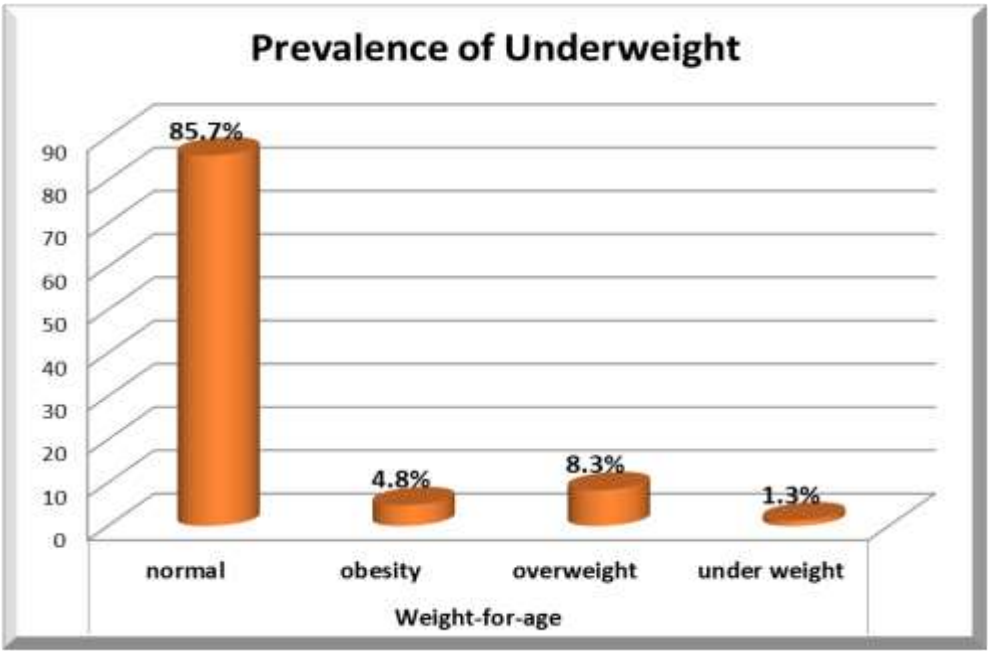

Figure (3): The prevalence of Underweight among studied sample

Figure 3: shows that the prevalence of underweight among the studied sample was (1.3%).

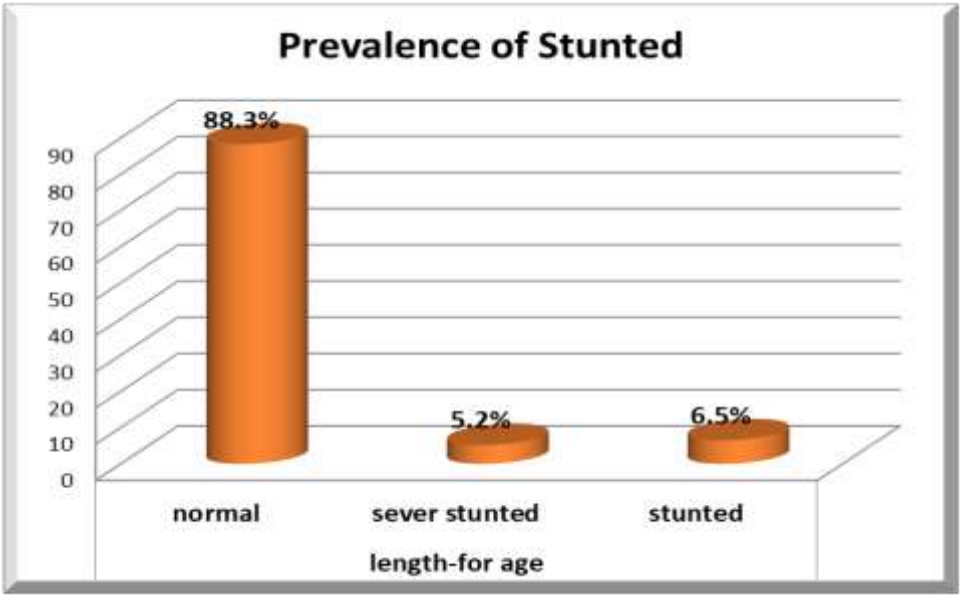

Figure 3.4: The prevalence of Stunting among the studied sample.

Figure 3.4: Shows the prevalence of stunting and severe stunting among children less than five years was (6.5%) (5.2%) straight.

Discussion

Among the children who participated in this study, 71 (30.7 %) fell in the age group 12–23 months. The mean age ± SD of children was 26.64±14.872 months. These results agreed with a retrospective observational hospital-based study conducted in Sudan by Kanan and Swar, (2016), in which a sample of 593 children with severe malnutrition was identified; the mean age of these children was 22.3 months, and the highest percentage was 250 (42.15%) of them fell in the age group of 12-23 months. Females constitute more than half of 135 (58.7%) of the studied sample in this study. This finding is consistent with a cross-sectional community-based descriptive study in Sudan, which reported that 52.6% were females and 47.4% were males (Musa et al., 2014). In contrast, findings of the previous study done in Ethiopia by Gebre *et al.*, (2019) showed that 56.7 % of children were males.

This study indicates that the highest percentage of 96 (41.7%) of mothers' education was primary level; the majority of them, 174 (75.7%), were unemployed. This finding was consistent with a prior study conducted in Uganda, in which the majority (59.89%) of mother education was with primary education. However results of a cross-sectional study done in Pakistan disagree with the results of this study, in which a total of 3964 children under five years, the majority (87.9%) of mothers education where no formal education (Khan et al., 2016). Regarding the father's education level, the highest percentage, 80 (34.8%), were with a primary level of education, and the majority, 124 (53.9%) of them, were not employed. The same findings were observed in a cross-sectional study in Iraq among 220 children by Ghazi *et al.*, (2013) , who found that the father's educational level was low.

This finding corresponds to the results of a cross-sectional study in Ethiopia among 385 children revealed that the total prevalence of malnutrition in below age-5 was (14.3%) (Menalu et al., 2021). This prevalence falls into the national rate of 10–45% (Lopez, 2014). Under nutrition is often measured by anthropometrics and assessed for stunting, wasting, and being underweight. These terms are based on the classification of the World Health Organization (WHO) using the average child development criteria in terms of standard deviations (SD)(WHO,2009).

The prevalence of severe wasting in each gender was (1.3%) in this study. This finding agrees with a previous study in Iraq Global Nutrition Report, (2020), the prevalence of wasted was 2.8%. While these results disagreed with the study in Uganda among a sample of 2214 children, in which the prevalence of wasting in boys and girls was 5% (Mawa,2018). A possible explanation for this difference may be due to the consumption of growth-stimulating foods by most children in the current study, which indicates a lower incidence of underweight. This study disagreed with the study findings conducted in Iraq by Ghazi *et al.*, (2013), who reported that the overall prevalence rate of underweight children was 18.2%. The possible explanation for this result is the difference in the economic situation

between the two studies samples, while the comparative study in which most of the participants were low-income earners.

The prevalence of stunting among children less than five years was (6.5%). This finding disagreed with a previous study in Pakistan among 3964 children less than five years of age, which reported that the prevalence of stunting in the study area was 16.2% (14). However, these results agreed with the study conducted in Iraq, the prevalence of stunting was 10.3% Global Nutrition Report, 2020).A possible explanation for this result is the awareness of most mothers of healthy eating habits, which play an essential role in reducing stunting. Stunting or chronic malnutrition is usually an indication of long-term deprivation and remains a problem of greater magnitude than underweight or wasting. It more accurately reflects nutritional deficiencies and illnesses that occur during the most critical periods of growth and development in early life (UNICEF,2009).

Conclusions

1. The study concluded that there are a number of children suffering from malnutrition.
2. There was a significant association between some variables (educational level/ occupation of father and malnutrition.

Recommendations

The study suggests implementing educational programs in primary health care centers by mothers' caregivers regarding their awareness to correct the health system to make the child grow well and providing mothers with a booklet that includes healthy guidelines for the child's development.

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