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Nutritional Assessment of Orphanage Children in AL-Diwaniyah City, Iraq

Alyaa Ahmed Abdel Karim, Al-Musawi Khatam Mutasher*

Department of Pediatric Nursing, College of Nursing, University of Baghdad, Baghdad, Iraq

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**Corresponding author:*

Al-Musawi Khatam Mutasher, PhD;
Pediatric Nursing Department,
College of Nursing, University of
Baghdad,
Baghdad, Iraq.

Email: dr.khatam@conursing.uobaghdad.edu.iq

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ABSTRACT

Background: Globally, nutrition is regarded as one of the most significant determinants of human life quality. This study was conducted to determine the subjective nutritional assessment of children in orphanages in orphanages in AL-Diwaniyah city, Iraq.

Methods: In a non-probability sample (convenient), 40 children in orphanages in Diwaniyah city were enrolled. The children's demographic data and the subjective global assessment scale were utilized for analysis.

Results: Totally 75% of children were 9-12 years; while 50% were male and 50% were female. Education distribution revealed a higher proportion of orphanage children in higher grades (47.5% in 5th or 6th grade). Most of the samples had mild (60%); while 30% had moderate malnutrition.

Conclusion: Most orphaned children suffered from malnutrition. So it is important to coordinate with policy makers to develop a program that allows for the establishment of specialized counselors to work in orphanages.

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Introduction

An orphan is a child who has lost home when the parents have passed away. The Orphans do not receive parental care, support or supervision. Children without parents become alone, contemplative, and yearn for love. The number of children who lose their parents and become orphans has gone up in recent years. Over one in seven children worldwide are reported to be orphan, with an estimated 153 million of them living in sub-Saharan Africa. It is estimated that there are more than 1.1 million orphan children in Ghana. Even with one or both parents still living, there are children in Turkey and other countries that require protection. This group includes children whose parents are unknown to them or who have been left behind by either parent who are in danger of involvement with begging

or drug gangs. The Society for the Protection of Children and Social Welfare Services both classify these kids as children in need of protection. Legally speaking, a children may be declared an orphan if one of their parents disappears, leaves them behind, or gets divorced (1).

Nutrition is regarded as one of the most significant determinants of human life quality (2). Additionally, it has a direct correlation with growth and development retardation, a reduction in infection resistance, and environmental risks (3). The increase in height and weight will be delayed if the dietary deficit is significant and persistent (4).

Consuming a balanced diet also reduces the risk of a number of illnesses including iron-deficiency anemia, heart diseases, high blood pressure, dyslipidemia, type 2 diabetes, osteoporosis,

constipation, diverticular disease, overweight and obesity and malnutrition (5-8). Nutrition is the process by which the body absorbs and uses the nutrients included in food for growth, repair, and maintenance. Fast food consumption continues to rise, particularly among younger people (9-11). Throughout childhood, a healthy, balanced diet is crucial for preventing growth and developmental retardation, childhood malnutrition, and health issues such as iron deficiency anemia, obesity, cardiovascular diseases, type 2 diabetes, cancer, and stunting (12-15). An abnormal accumulation of body fat, typically 20% or more above a person's optimal body weight, is called obesity. A higher risk of disease, disability, and death is linked to obesity (16, 17). According to the World Health Organization, obesity is a global epidemic, and the diseases that might result from it became more common (18).

In recent decades, childhood obesity has emerged as a public health concern in the majority of nations worldwide (19). Children in orphanages are more likely to suffer from malnutrition. India is home to four of every ten malnourished children worldwide. The most common nutrition-related public health issues in underdeveloped nations are malnutrition and anemia, yet little information is known about how common these conditions are among orphanage-adopted children (20). Living in an orphanage differs

from living with a family, since the former offers food, shelter and physical protection, but lacks psychological stability (21).

Globally, children in orphanages frequently exhibit an inadequate nutritional state. It should be noted that malnutrition, physical or mental abuse, food insecurity, as well as a lack of parental care and protection, are frequently observed scenarios among the children living in orphanages. Determining the vulnerability of children growing up in impoverished urban settings to food insecurity and malnutrition is of utmost importance. The number of children, who lose their parents and become orphans, has risen globally in recent times (22). Due to its lasting effects that extend beyond childhood, under-nutrition in children is a serious issue. It has repercussions in the short and long terms. Undernourished children, for example, are less productive physically, emotionally, and intellectually than their non-undernourished counterparts. They also experience a higher prevalence of chronic illnesses and disabilities (21, 23). Therefore, this study was undertaken to assess nutritional state of orphanage children in AL-Diwaniyah City, Iraq.

Materials and Methods

In a non-probability convenient sampling method, 40 children who were students in orphanages in

Table 1: Distribution of orphanage children according to their socio-demographic characteristics.

No.	Characteristics		Orphanage	
			Frequency	%
1	Age (year)	6–8	10	25
		9–12	30	75
		Total	40	100
		Mean±SD	9.8±1.9	
2	Sex	Male	20	50
		Female	20	50
		Total	40	100
3	Family monthly income	Low	-	-
		Moderate	-	-
		High	-	-
		Total	-	-
4	Education	Pre-primary	3	7.5
		1 st or 2 nd grade	7	17.5
		3 rd or 4 th grade	11	27.5
		5 th or 6 th grade	19	47.5
		Total	40	100
5	Parents' education	Did read and write	0	0
		Primary school	0	0
		Secondary school	0	0
		Diploma	15	37.5
		Bachelor	24	60
		Others	1	2.5
		Total	40	100

No: Number, %: Percentage, SD: Standard deviation.

AL-Diwaniyah City during December 2024 were enrolled. A questionnaire was utilized to collect the data. The purpose of the study was described for the participants in a simple way before data collection. The questionnaire took 15 to 20 minutes to be completed. The statistical analysis was performed using SPSS software (Version 26, Chicago, IL, USA).

Results

Table 1 shows that most children fell within the 9-12 years old age range (75%). The gender distribution was relatively balanced in the orphanage group (50% males and 50% females). A high proportion of orphanage children were in higher educational levels (47.5% in 5th or 6th grade). Concerning their parents' education levels, most parents had a bachelor's degree (60%) or a diploma (37.5%). Table 2 presents the evaluation of global nutritional assessment; in term of body mass index. It was shown that the orphanage group had a higher prevalence of underweight children (50%) and the overweight children were 35%. In term of

dietary intake, the highest percentage of children had borderline dietary intake (47.5%). Regarding gastrointestinal symptoms, most children experienced intermittent or no gastrointestinal symptoms (90%); while daily symptoms were 10%. Considering functional capacity, 52.5% reported difficulty with ambulation or normal activity. None of the children were bed- or chair-ridden, indicating that severe physical limitations were not a concern in this population. Table 3 indicates that the highest percentage of children were under the category of mild malnutrition (60%). Table 4 reveals a significant association between age and nutritional status ($p=0.023$); while children aged 6-8 years had a lower mean score when compared to those aged 9-12 years, suggesting these factors did not significantly influence the nutritional status of the children in the orphanages.

Discussion

The findings of the present study revealed that a high percentage of orphanage children were in the age grouping of 9-12 years. This result is supported

Table 2: Nutritional assessment of orphanage children.

No.	Nutritional assessment	Orphanage (No.=40)	
1	Body mass index	Frequency	(%)
	Underweight	20	50
	Normal	6	15
	Overweight	14	35
2	Dietary intake	f	(%)
	Intake poor; no change	0	0
	Intake poor; decreasing	7	17.5
	Intake poor; increasing	1	2.5
	Intake borderline; decreasing	13	32.5
	Intake borderline; increasing	19	47.5
3	Gastrointestinal symptoms	f	(%)
	None; intermittent	36	90
	Some (daily>2 week)	4	10
	All (daily>2 week)	0	0
4	Functional capacity	f	(%)
	No dysfunction	19	47.5
	Difficulty with ambulation/normal activity	21	52.5
	Bed/chair-ridden	0	0

No: Number, f: Frequency, %: Percentage.

Table 3: Evaluation of nutritional status of orphanage children.

Nutritional status	Orphanage			
	f	%	M	SD
Normal	4	10	4.58	1.752
Mild malnutrition	24	60		
Moderate malnutrition	12	30		
Severe malnutrition	0	0		
Total	40	100		

f: Frequency, %: Percentage, M: Mean of total score, SD Standard deviation. Normal=0–2, Mild=3–5, Moderate=6–8, Severe=9–10.

Table 4: Association of nutritional status with sociodemographic data of orphanage children.

Variable		Nutritional assessment		
		Mean	SD	Association
Age (year)	6–8	3.40	0.966	$r^s=0.359$
	9–12	4.97	1.790	$p=0.023$
	Total	4.58	1.752	Sig=S
Sex	Male	4.60	1.984	U=192.500
	Female	4.55	1.538	$p=0.836$
	Total	4.58	1.752	Sig=NS
Education	Pre-primary	3.33	0.577	H=5.700
	1 st or 2 nd grade	3.86	1.773	$p=0.127$
	3 rd or 4 th grade	4.36	1.567	Sig=NS
	5 th or 6 th grade	5.16	1.834	
	Total	4.58	1.752	
Parents' education	Did read and write	-	-	H=0.323
	Primary school	-	-	$p=0.851$
	Secondary school	-	-	Sig=NS
	Diploma	4.67	1.234	
	Bachelor	4.50	2.064	
	Others	5.00	.	
	Total	4.58	1.752	

r^s : Spearman Correlation coefficient, U: Mann-Whitney, H: Kruskal-Wallis, P: Probability, Sig: Significance, NS: Not Significant, S: Significant, HS: High Significant.

by a previous study who examined the food environment and nutritional status of children living in orphanage homes. They found the majority of children (39%) were between (8-9) years (24). Not similarly, Ajuzie et al. assessed nutritional status of adolescents in orphanages and found that most of the participants (35%) were 13-15 years (25). In the same line, Naser and Al-Fayyadh in school-age children found most participants to be between ages 6-8 years (26). Furthermore, orphanage children's sex in our study was restricted equal (50%) for both male and female genders; even Barathi and Sheeb found the majority of participants to be male (27). Also, Mizal and Mohammed reported the majority of participants (64%) to be male (28). Eidan and Shawq demonstrated the majority of children (58%) to be male too (29). Also, Shawq's findings revealed most participants to be male (30).

Regarding socioeconomic status among orphanage children without family income, Riaz *et al.*'s findings was in contrast with our results (31). Considering the education level of orphanage children, we showed 47.5 to be in 5th or 6th grade. Riaz *et al.* found that 58% of children were in primary classes (31). The finding of our study revealed that more than half of the care givers of the orphanage children were Bachelor degree who can have a deeper understanding of the psychological and social concepts related to child care. These results are not in consistent with the findings of Habsi and Ajil who evaluated the self-esteem of children living with their parents of secondary schools in Al-Rusafa in comparison to children who lived in orphanages

which was located in Rusafa, Baghdad, Iraq (32). Our results in relation to nutritional assessment of orphanage children were supported by Reddy and VR who showed 32.3% were underweight (33). We illustrated a significant association between age and nutritional assessment in orphanage children. Similar findings were noticed by Agbozo *et al.* who observed a high underweight prevalence among 6-7 years of age group in both government (44.3%) and private (55.6%) schools (34).

Conclusion

Our findings revealed that most orphanage children were malnourished. So it is important to coordinate with health authorities and policy makers to develop a program that allows for the establishment of a specialized counselor to work in orphanages.

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Authors' Contribution

A.A.A.K was responsible for the study design, data collection. Data analysis, and manuscript writing. A.M.K.M proposed the scale and critically revised the manuscript for important intellectual contnt.

Conflict of Interest

The authors declare no conflicts of interests.

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