

ORIGINAL ARTICLE

DETERMINANTS OF NUTRITIONAL STATUS OF UNDER 5 YEARS CHILDREN

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ABSTRACT

Background: Malnutrition continues to be a major public health problem in developing and underdeveloped countries. The objectives of the study were to determine the determinants of nutritional status of under 5 years children in our population.

Materials & Methods: This analytical cross sectional study was conducted by the Department of Public Health, Islamabad, Federal College, Islamabad, from November 2016 to March 2017. Sample size was 200 selected by convenient sampling. Demographic variables were sex, age-groups, socio-economics status, family structure. Research variable was nutritional status. The data collection was done in urban slums of Islamabad on a structured questionnaire. Statistical analysis was done by using SPSS software.

Results: Out of 200 children, 117(58.5%) were boys and 83(41.5%) were girls. One hundred (50%) children were of 6 to 24 months and 100(50%) were of 25 to 59 months of age. Eighty three (41.5%) were rich and 117(58.5%) were poor. One hundred and fifty eight (79%) children were from joint family system and 42(21%) were living in nuclear family system were children. One hundred and fifty one (75.50%) were normal, 39(19.50%) were mild and 10(5%) were having severe malnutrition.

Conclusion: Except age all the other factors including sex, socio-economics status and family structure were associated with nutritional status of under 5 year children.

KEY WORDS: Nutritional status; Under 5 years; Urban slums; Children.

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INTRODUCTION

Nutrition is the process of provision of necessary nutrients to support the functioning of health and life. We can classify nutrients into two main categories as macro and micro nutrients. This category is based on the daily requirement of the nutrients in the human nutrition. Carbohydrates, fats, proteins and water come under macro nutrients whereas minerals and vitamins come under micro nutrients.¹

Recommended daily amount of nutrients have to be consumed by the human otherwise imbalance may occur. This imbalance in nutritional status of human

is called malnutrition. Malnutrition is a condition in which imbalance occurs between body requirement of the calories and provision of that needed caloric requirement. This malnutrition can happen due to dietary deficiency, under or over consumption of calories due to some pathology or disease. Infants and children are more sensitive towards nutritional imbalance which causes malnourishment among infants or children and cause high mortality and morbidity among this age group. Malnutrition is also the main contributory factor of deaths related to childhood diseases.²

Despite of economic development of the countries malnutrition in children is an important public health issue in most of the developing countries. When we talk about the nutritional status of a particular community, nutritional status of preschool children is always taken as an indicator to measure the health and nutrition of that community. Malnutrition among

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children leads toward growth failure, impaired intellectual quality and make them vulnerable towards the childhood infections.³

Conditions caused by malnutrition like stunting and wasting in under 5 years age children are prevalent among underdeveloped and developing countries. United Nations data showed that there are 840 million undernourished people around the Globe.⁴

National nutrition survey of Pakistan in 2011 showed that there are 43.7% stunted, 15.1% wasted and 31.1% underweight children in Pakistan. Pakistan has second highest child mortality among South Asian countries. Under five child mortality in 2005 was 101/1000 live births. Malnutrition is the cause of high infant and under five morbidity and mortality. Out of every three under five children one is malnourished.⁵

In Pakistan nutritional status of children is not satisfactory and is an important public health issue. Country is also facing the challenge of effective management of malnutrition of children including infants, preschool, under five year of age children).⁶

Nutritional assessment of this group of population can provide evidence about the present status of nutrition of the community. Children living in urban slums are facing socio demographic challenges and poverty. They are more prone to become malnourished. In nutritional assessment we assess nutritional parameters from dietary, laboratory and anthropometric measurements. Information is used to interpret the intake and utilization of nutrients among the study population. The hypotheses of this study are as follows.

H₀₁: There is association of nutritional status of under 5 years children with sex.

H₀₂: There is association of nutritional status of under 5 years children with socio-economic status.

H₀₃: There is association of nutritional status of under 5 years children with age.

H₀₄: There is association of nutritional status of under 5 years children with family structure.

Operational definitions of mild and severe malnutrition were children scoring between 50th and 3rd percentile on weight for age and those below 3rd percentile respectively (WHO Standard growth chart). The objectives of the study were to determine the determinants of nutritional status of under 5 years children in our population.

MATERIAL AND METHODS

This analytical cross sectional study was conducted by the Department of Public Health, Islamabad, Federal College, Islamabad, from November 2016 to March 2017. Sample size was 200 selected by convenient sampling. Demographic variables were sex, age-groups in months (6-24, 25-59), socio-economics status (high, low), family structure (joint family, nuclear family). Research variable was nutritional status (normal, mild malnutrition, severe malnutrition). The data collection was done in urban slums of Islamabad on a structured questionnaire. Statistical analysis was done by using SPSS software.

RESULTS

Out of 200 children, 117 (58.5%) were boys and 83 (41.5 %) were girls. One hundred (50%) children were of 6 to 24 months and 100 (50%) were of 25 to 59 months of age. Eighty three (41.5%) were rich and 117 (58.5%) were poor. One hundred and fifty eight (79%) children were from joint family system and 42 (21%) were living in nuclear family system were children. One hundred and fifty one (75.50%) were normal, 39 (19.50%) were mild and 10 (5%) were having severe malnutrition. Figure 1

The nutritional status was found to be associated with sex, socio-economic status and family structure.

Table 1: Association of nutritional status of under 5 years children with sex of urban slums of Islamabad, Pakistan (n=200).

Sex	Nutritional Status									Row Total	X ²	d.f.	p-value
	Normal			Mild Malnutrition			Severe Malnutrition						
Male	O	E	X ²	O	E	X ²	O	E	X ²	117	24.77	2	<.00001 H ₀₁ Rejected
	65	(47.97)	[6.05]	27	(36.85)	[2.64]	25	(32.17)	[1.60]				
Female	17	(34.03)	[8.52]	36	(26.14)	[3.71]	30	(22.82)	[2.26]	83			
Column Total	82			63			55			200 (Grand Total)			

O=Observed, E=Expected, X²=Chisquare value. The result is significant at alpha .05.

Table 2: Association of nutritional status of under 5 years children with socio-economic status of urban slums of Islamabad, Pakistan (n=200).

Socio-economic Status	Nutritional Status									Row Total	X ²	d.f.	P-value
	Normal			Mild Malnutrition			Severe Malnutrition						
High	O	E	χ ²	O	E	χ ²	O	E	χ ²	83	6.70	2	.0349 H ₀₂ Rejected
	48	(40.26)	[1.49]	23	(24.07)	[0.05]	12	(18.68)	[2.39]				
Low	49	(56.74)	[1.06]	35	(33.93)	[0.03]	33	(26.32)	[1.69]	117			
Column Total	97			58			45			200 (Grand Total)			

O=Observed, E=Expected, X²=Chisquare value. The result is significant at alpha .05.

Table 3: Association of nutritional status of under 5 years children with age of urban slums of Islamabad, Pakistan (n=200).

Age	Nutritional Status									Total	X ²	d.f.	P-value
	Normal			Mild Malnutrition			Severe Malnutrition						
6-24 months	O	E	χ ²	O	E	χ ²	O	E	χ ²	100	2.93	2	.2302 H ₀₃ accepted
	43	(48.50)	[0.62]	35	(30.00)	[0.83]	22	(21.50)	[0.01]				
25-59 months	54	(48.50)	[0.62]	25	(30.00)	[0.83]	21	(21.50)	[0.01]	100			
Total	97			60			43			200 (Grand Total)			

O=Observed, E=Expected, X²=Chisquare value. The result is significant at alpha .05.

Table 4: Association of nutritional status of under 5 years children with family structure of urban slums of Islamabad, Pakistan (n=200).

Family Structure	Nutritional Status									Total	X ²	d.f.	P-value
	Normal			Mild Malnutrition			Severe Malnutrition						
Joint family	O	E	χ ²	O	E	χ ²	O	E	χ ²	158	8.74	2	.0126 H ₀₄ Rejected
	85	(76.63)	[0.91]	40	(45.82)	[0.74]	33	(35.55)	[0.18]				
Nuclear family	12	(20.37)	[3.44]	18	(12.18)	[2.78]	12	(9.45)	[0.69]	42			
Total	97			58			45			200 (Grand Total)			

O=Observed, E=Expected, X²=Chisquare value. The result is significant at alpha .05.

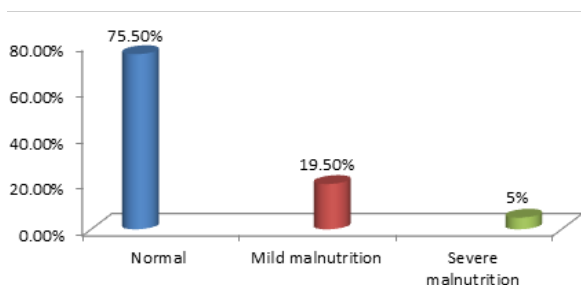


Fig: 1 Nutritional status of under 5 years children of urban slums of Islamabad, Pakistan (n=200).

DISCUSSION

This study is similar with the study conducted in the rural subsistence agricultural district of Hoima, western Uganda in 2002; that was a cross-sectional survey on 720 child/mother pairs. Purpose was to assess the predictor of poor anthropometric measurements among study population.⁷

Gender was found non-significantly associated with the nutritional status of the children unlike a study in the city of Turkey, 2007.⁸

Socio economic status was found to be significantly associated with the nutritional status like a study in the city of Turkey, 2007.⁸

Age was found to be significantly associated with the nutritional status. A study conducted in 2006 for evaluation and reporting of the factors influencing malnutrition among children under 2 years of age in Botswana, showed that underweight status was significantly associated with the female gender, age, poverty, and lack of knowledge of breast feeding. From our study it is also evident that family structure and nutritional status were also found significantly associated with each other ($p < 0.05$).⁹

A similar study was conducted in North West Ethiopia in 2007 used digital weight scale for weighing the under five years of age children, while height of above two years of age children was measured and length of the young children was measured on standard scale. Nutritional status of the children was assessed by the use of nutritional indicators like weight for age, weight for height and height for age. They classified the malnutrition among children on underweight, stunting and wasting classification of malnutrition.^{10,11}

Case-control studies to determine the risk factors for protein-energy malnutrition in children under the age of 6 years in Iran showed that malnutrition was significantly associated with the female gender.^{12,13}

A similar study conducted by Nzala et al (2011) to determine the association of demographic, cultural and environmental factors with frequency and severity of malnutrition among children less than 5 years of age in Zambia showed that these socio

demographic, cultural and environmental variables are significantly associated with the malnutrition of the children. This study also showed significantly association between children poor immunization status and underweight status.¹⁴

Another study conducted in Ethiopia for the measurement of prevalence of malnutrition and associated factors among children aged 6-59 months at Hidabu Abote District, North Shewa, and Oromia Regional State in 2012, showed that there is strong association between family monthly income and malnutrition in children.¹⁵

CONCLUSION

From the study it is concluded that except age all the other factors including sex, socio-economics status and family structure were associated with nutritional status of under 5 year children.

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CONFLICT OF INTEREST

Authors declare no conflict of interest.

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None declared.

AUTHORS' CONTRIBUTION

The following authors have made substantial contributions to the manuscript as under:

Conception or Design: HE, NW
Acquisition, Analysis or Interpretation of Data: HE, NW, SR, SJ, SI, FI, HA, IAK
Manuscript Writing & Approval: HE, NW, SR, SJ, SI, FI, HA, IAK

All the authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.



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