



## Evaluation of Factors Associated with Malnutrition under 5 Year Old Children in DHQ Hospital Sahiwal

Shahbaz Bashir\*, Baber Khan, Arslan Khalid, Hafiza Iqra Faryad, Hafiza Arooj Fatima, Wara Saeed

Department of Medicine, Sahiwal Medical College, Sahiwal, Pakistan

### ABSTRACT

**Background:** Malnutrition is a serious child health issue throughout the developing world. Pakistan has the second highest infant and child mortality rate in South Asia. This study was carried out to assess the factors of malnutrition under 5 years of age children and to determine the frequency and association of malnutrition with various demographic variables in the study group.

**Methods:** A cross sectional study was conducted at the PAEDS ward and OPD of the DHQ hospital Sahiwal during July-August 2017. Malnourished children of under 5 years of age without confirmed diagnosis of any disease/ailment were included. Guardians of 41 children were interviewed using a structured questionnaire. Demographic variables include age, gender, family size, family income, breastfeeding, maternal education and presence of siblings under 5 years in family. Weight (kg) was measured and malnutrition was assessed by weight for age.

**Results:** Our study indicated malnutrition to be significantly associated with child age, use of formula milk, occurrence of diarrhea, mother illiteracy and lack of access to filtered water. No significant association was found between malnutrition and gender, family size, family income, breast feeding and presence of siblings under 5 years of age.

**Conclusion:** There is a need to plan composite interventions to elucidate the factors that place children at greater risk for malnutrition.

**Keywords:** Malnutrition; Child nutrition; Child nutrition disorders; Child nutritional status; Infant nutrition disorders

## INTRODUCTION

World Food Programme (WFP) defines malnutrition as “A state in which the physical function of an individual is impaired to the point where he or she can no longer maintain

adequate bodily performance process such as growth, pregnancy, lactation, physical work and resisting and recovering from disease [1].”

<b>Received:</b>	23-August-2019	<b>Manuscript No:</b>	IPPHR-24-1582
<b>Editor assigned:</b>	28-August-2019	<b>PreQC No:</b>	IPPHR-24-1582 (PQ)
<b>Reviewed:</b>	11-September-2019	<b>QC No:</b>	IPPHR-24-1582
<b>Revised:</b>	21-June-2024	<b>Manuscript No:</b>	IPPHR-24-1582 (R)
<b>Published:</b>	19-July-2024	<b>DOI:</b>	10.35841/2472-1646.9.02.11

**Corresponding author:** Shahbaz Bashir, Department of Medicine, Sahiwal Medical College, Sahiwal, Pakistan; E-mail: dr.shahbazsipra@gmail.com

**Citation:** Bashir S, Khan B, Khalid A, Faryad HI, Fatima HA, et al. (2024) Evaluation of Factors Associated with Malnutrition under 5 Year Old Children in DHQ Hospital Sahiwal. *Pediatr Health Res.* 9:11.

**Copyright:** © 2024 Bashir S, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

- Malnutrition is a serious child health issue throughout the developing countries and the cause of approximately 50% of the 10.7 million deaths each year among under-five children in the developing world.
- The lancet series on maternal and child under nutrition (2008) reported that 20% of underweight children younger than 5 belonged to low and middle income countries.
- After India (39%) and Bangladesh (5.7%), Pakistan (5.5%) contributes the third largest share of under-weight children in the world.
- Malnutrition has a complex etiology related to several factors that alter the nutritional status of a child at varying levels. It should be kept in mind that malnutrition is totally a preventable pandemic provided that the risk factors involved are identified and combated at an early stage of child growth.

Keeping in view, this study was conducted with an objective to assess the factors of malnutrition of children <5 years of age and to determine the frequency and association of malnutrition with various demographic variables in those children [2].

The conclusions drawn from the study can be used for creating a conducive environment at local level by eliminating those risk factors. At the national level, this could be used to mobilize opinion leaders and decision makers.

The study is expected to enrich the existing body of research and may herald further research aiming at defining linkage between under five malnutrition and various demographic variables [3].

## MATERIALS AND METHODS

This was a cross-sectional study conducted at the PAEDS ward and OPD of DHQ hospital Sahiwal during July-August 2017. The study population comprised of children presenting to the OPD and PAEDS wards of district headquarter hospital Sahiwal.

The general health status of children was assessed by taking a detailed history from their parents/guardians. Malnourished children, under-five years of age, without confirmed diagnosis of any disease were included in the study. All children either greater than five years of age or diagnosed with severe illness were excluded [4].

A pre-tested questionnaire was used to collect information from the guardians of the children after taking their informed oral consent. Questionnaire was consist of 36 questions containing demographic variables to identify individual factors, family factors and socioeconomic or environment factors as predicted in referential studies include like age, gender, family size, family income, breastfeeding, maternal education, the presence of siblings <5 years of age in the family. Weights (kg) of the children were measured using standard measuring devices in PEADS ward and OPD [5].

The World Health Organization (WHO) classification of weight-for-age (W/A) index was used to assess the nutritional

status of the children. Underweight, based on weight-for-age, is a composite measure of stunting and wasting and is recommended as the indicator to assess changes in the magnitude of malnutrition over time.

The nutritional status of children in our study population is compared with the WHO child growth standards. The data was entered and analyzed using Statistical Package for Social Sciences (SPSS) version 22. Weight-for-age (W/A) were calculated using WHO weight/age graph for girls and boys [6].

## RESULTS

A total of 41 subjects were included in this study comprising 20 males and 21 females with a mean age of 20.31 months ranging from 0-60 months. All the participants were malnourished as we compared their current weights with WHO W/A standard charts.

Findings of factors and their frequencies and relations associated with malnutrition are displayed below.

The frequency of malnutrition was highest in the 0-20 months (75.6%) age group and was comparatively lower in other groups. No significant association was found between malnutrition and gender. It occurred with the same frequency in both males and females [7].

A statistically significant relationship was established between maternal education and malnutrition in our study. The frequency of malnutrition was higher in the children whose mothers had no or very little education (80.5% children's mothers were illiterate).

Our study indicates that those families which don't have access to filtered water, their child's suffer more from diarrhea and are malnourished. This is an important factor of malnourishment in children under 5 at DHQ hospital Sahiwal. Our study also gives the statistical relation between malnourishment and use of formula milk (Dabba Dodh) as compensation of mother milk [8].

No significant association was found between malnutrition and family size, family income, breastfeeding, age of weaning and presence of siblings <5 years of age in the family (Figures 1-4) (Tables 1-3).

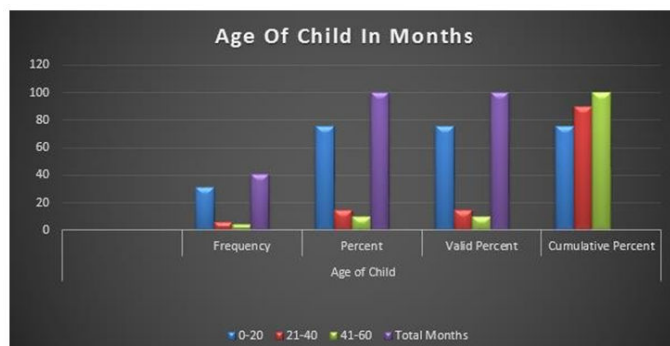
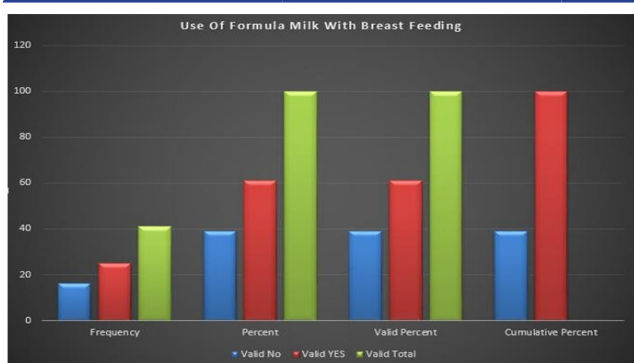


Figure 1: Age of child in months.

**Table 1:** Age of child.

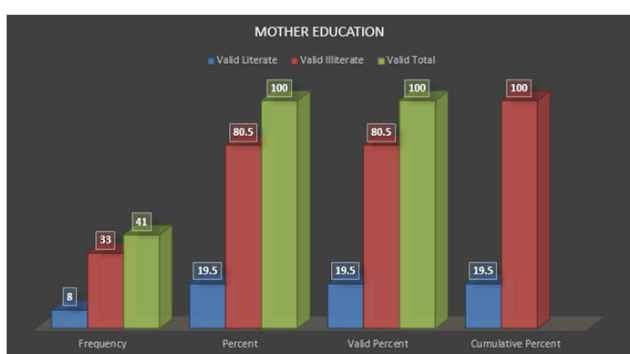
	Frequency	Percent	Valid percent	Cumulative percent
0-20 months	31	75.6	75.6	75.6
21-40 months	6	14.6	14.6	90.2
41-60 months	4	9.8	9.8	100
Total	41	100	100	



**Figure 2:** Use of formula milk with breast feeding.

**Table 2:** Use of formula milk with breast feeding.

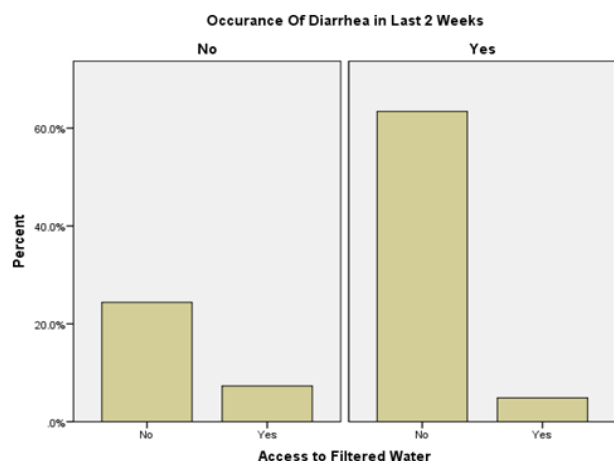
		Frequency	Percent	Valid percent	Cumulative percent
Valid	No	16	39	39	39
	Yes	25	61	61	100
	Total	41	100	100	



**Figure 3:** Mother education.

**Table 3:** Mother education.

		Frequency	Percent	Valid percent	Cumulative percent
Valid	Literate	8	19.5	19.5	19.5
	Illiterate	33	80.5	80.5	100
	Total	41	100	100	



**Figure 4:** Occurance of diarrhea in last 2 weeks.

## DISCUSSION

Worldwide, malnutrition is an underlying cause of death for 2.6 million children each year. To combat such a high mortality rate, a vigilant identification and comprehension of each factor influencing malnutrition is required. To our knowledge, this is probably the first study to recognize the associated factors of under-five malnutrition in PEADS ward and OPD of DHQ hospital Sahiwal [9].

Our study was conducted in July-August 2017. According to Pakistan Panel Household Survey (PPHS-2010) micro-data, 56.9% children were adequately nourished, 15.7% were moderately malnourished and 23.7% were severely malnourished, whereas in our study we took only malnourished child and did not categorized them into moderate or severe categories to avoid complication of data.

In the first place, according to a study conducted in Iran (2011), male gender was considered as a protective factor against malnutrition, whereas, females were found to be more strongly related to under-nutrition, however, as per a study from Luangprabang province, Laos, males were more likely to be underweight [10].

On the other hand, in our findings, gender is not a key indicator of malnutrition. Secondly, our study has shown that the frequency of malnutrition was highest in the age group of 0-20 months as compared to remaining age groups. Conversely, a study of Oromia indicated children aged 48-59 months as the important factor of malnutrition.

A similar study conducted in Sialkot found the highest proportion of malnourished children in 13-36 months age group. This demands further research to probe if this is a high-risk group in our population. Furthermore, poverty and nutritional status of the child are not the directly correlating factors in this study, a finding consistent with a similar study carried out in India. In addition to that, previous studies have suggested malnutrition to be significantly associated with breastfeeding.

Whereas this factor remained insignificant in our study contrary to previous results. Moreover, Bahawaluddin J, et al. concluded in 2012 that the maternal illiteracy plays a major contributing role to child malnutrition [11].

Another study in Ludhiana found 40.7% cases of malnutrition associated with maternal illiteracy. Identically, our results also established a statistically significant association between malnutrition and maternal education and found 85.5% cases of malnutrition associated with maternal illiteracy.

Similarly, Henry FJ, et al. stated an increased risk of malnutrition among children with siblings under-five years old. Our results also identified a comparatively higher percentage of malnourished children in families having more than 1 child under 5 years of age [12].

However, this result was not statistically significant. The specific objectives of this study target child-survival and well-being. These have been a focus of public health communities for over last two decades. Unfortunately, they still remain an important issue in a developing country like Pakistan. This is reflected in United Nations Millennium Development Goals 4 (MDG 4) and 1 (MDG 1).

MDG 4 sets its targets (from 1990 to 2015) as a reduction in under-five mortality by two-thirds and MDG 1 as a reduction in prevalence of under-weight children by half. According to the United Nations Development Programmes (UNDP) report in Pakistan, progress on all indicators is lagging in MDG 1. Progress on MDG 4, in all but 1 target, is also off track. Currently, Pakistan stands among the worst in child and infant mortality. The child mortality rate has only marginally decreased, from 117 per thousand live births in 1990-91 to 94 per thousand in 2006-07.

The performance of Pakistan in achieving these goals is severely lagging and it is likely to miss them. The need, of measuring progress towards meeting these goals, has always been strongly felt by public health professionals and policy makers. Our study has tried to help satisfy this need by developing a better understanding of the individual contribution of each factor towards malnutrition.

This may go a long way in strengthening the impact of the child nutritional programmes in whole Pakistan and also in Sahiwal. Some of the limitations of this study need to be noted. The sample size of this study was small due to limited resources and time. In this regard, a community-based survey with large sample, including the children visiting the private setup in addition to public facilities is strongly recommended in the future [13].

## CONCLUSION

Children are the most vulnerable members of the society and to allow their development to be affected by poor nutrition is a waste of human potential.

This research study would be of little value if the assessment is not followed-up by policy actions, which are most likely to have the greatest impact on child malnutrition if directed at an early stage of child growth. In order to attain better nutritional outcomes for their children, women must be educated beyond primary school level. Moreover, offering frequent nutritional education programs can also be beneficial to the mothers, particularly those with no or very little education.

The local Government of Sahiwal should provide filtered water in localities of Sahiwal and an appropriate surveillance system should be devised for prompt and timely diagnosis of malnutrition in children and its management at PEADS ward DHQ hospital Sahiwal.

## ACKNOWLEDGEMENT

We are extremely thankful to Dr. Hassam Reham (Assistant professor community medicine, research unit, Sahiwal medical college) for data overview and for his continuous support, guidance and thoughtfulness throughout the research period.

## AUTHOR'S CONTRIBUTION

**Baber Khan:** Study conception and design, acquisition of data and interpretation of data.

**Shahbaz Bashir:** Drafting of manuscript, analysis of data and final approval of the version to be published.

**Arslan Khalid:** Drafting of questionnaire and acquisition of data.

**Hafiza Arooj Fatima, Hafiza Iqra Faryad and Wara Saeed:** Drafting of questionnaire and acquisition of data.

## REFERENCES

- Mengistu K, Alemu K, Destaw B (2013) Prevalence of malnutrition and associated factors among children aged 6-59 months at Hidabu Abote district, North Shewa, Oromia regional state. *J Nutr Disorders Ther.* 1(1): 2161-509.
- Masood-Us-Syed SS, Saleh M, Butt ZK (2011) Nutritional assessment of children under the age of sixty months in district Sialkot, Pakistan. *J Pioneer Med Sci.* 1(1):7.
- Mohseni M, Aryankhesal A, Kalantari N (2017) Factors associated with malnutrition among under five-year-old children in Iran: A systematic review. *Ann Trop Med Public Health.* 10(5).
- Poda GG, Hsu CY, Chao JC (2017) Factors associated with malnutrition among children < 5 years old in Burkina Faso: Evidence from the demographic and health surveys-IV 2010. *Int J Health Care Qual Assur.* 29(7): 901-908.
- Chagas DC, Silva AA, Batista RF, Simoes VM, Lamy ZC, et al. (2013) Prevalence and factors associated to malnutrition and excess weight among under five year-olds in the six largest cities of Maranhao. *Rev Bras Epidemiol.* 16(1):146-156.
- Obasohan PE, Walters SJ, Jacques R, Khatab K (2020) Risk factors associated with malnutrition among children under-five years in sub-Saharan African countries: a scoping review. *Int J Environ Res Public Health.* 17(23): 8782.
- Fernandes EC, Castro TG, Sartorelli DS (2017) Associated factors of malnutrition among African children under five years old, Bom Jesus, Angola. *Rev Nutr.* 30(1):33-44.
- Vitolo MR, Gama CM, Bortolini GA, Campagnolo PD, Drachler MD (2008) Some risk factors associated with overweight, stunting and wasting among children under 5 years old. *J Pediatr.* 84(3):251-257.
- Mohseni M, Aryankhesal A (2020) Developing a model for prevention of malnutrition among children under 5 years old. *BMC Health Serv Res.* 20(1):1-9.
- Sahu SK, Kumar SG, Bhat BV, Premarajan KC, Sarkar S, et al. (2015) Malnutrition among under-five children in India and strategies for control. *J Nat Sci Biol Med.* 6(1): 18.
- Asfaw M, Wondaferash M, Taha M, Dube L (2015) Prevalence of undernutrition and associated factors among children aged between six to fifty nine months in Bule Hora district, South Ethiopia. *BMC Public Health.* 15:1-9.
- Nhampossa T, Sigauque B, Machevo S, Macete E, Alonso P, et al. (2013) Severe malnutrition among children under the age of 5 years admitted to a rural district hospital in southern Mozambique. *Public Health Nut.* 16(9): 1565-1574.
- Asra M, Lin X, Haq IU, Pasha AB, Shao Y, et al. (2020) Malnutrition associated factors on children under 5 years old in Lhaviyani Atoll, Maldives. *J Biomed Res.* 34(4):301.