

# Nutritional Status of Children Under the Age of Five Years in Pakistan

ZAHID MAHMOOD<sup>1</sup>, JUNAID GHAFAR<sup>2</sup>, KHALID MAHMOOD<sup>3</sup>, MUHAMMAD UZAIR<sup>4</sup>, RIFFAT FARRUKH<sup>5</sup>, SHAHEEN MASOOD<sup>6</sup>

<sup>1</sup>Assistant Professor Pediatrics, Shaikh Zayed Hospital, Rahim Yar Khan

<sup>2</sup>Assistant Professor of Pediatrics, Sialkot Medical College, Sialkot

<sup>3</sup>SR Pediatrics Medicine, Sughra Shafi Medical Complex Sahara Medical College, Narowal

<sup>4</sup>Assistant professor pediatrics .Sahara medical college, Narowal

<sup>5</sup>Assistant Professor, Department of Pediatrics, Karachi Medical and Dental College and Abbasi Shaheed Hospital

<sup>6</sup>Assistant Professor Pediatrics, Karachi Medical and Dental College

Corresponding author: Zahid Mahmood, Email: [zahid\\_mehmood232@yahoo.com](mailto:zahid_mehmood232@yahoo.com)

## ABSTRACT

**Background:** Malnutrition has become quite common among children especially in rural areas of Pakistan. The nutritional status of children under the age of five was assessed and the degree of malnutrition and its associated factors were studied. The socioeconomic status, delayed weaning and lack of education of parents are some of the key reasons of malnutrition in case of children.

**Objectives:** This study aimed to analyze the nutritional status of children under the age of five years in Pakistan

**Study design:** This is a cross-sectional study conducted on 250 children that visited the tertiary care center Shaikh Zayed Hospital, Rahim Yar Khan and Abbasi Shaheed Hospital, Karachi from May 2021 to April 2022. The study duration was one year.

**Materials and methods:** The data was taken from 250 children, among these there were 147 boys and 103 girls. Written consent was taken from the parents, and they were fully aware of the study. The children were selected as per Non-probability convenient sample method. The physical growth and nutritional condition was evaluated by making use of basic anthropometric technique. A semi-structured questionnaire was prepared and face to face interview was carried out with the mothers of the children. SPSS version 16 was used for calculations and statistical analysis was done by using the same software.

**Results:** Out of 250 children that were included in the study, 147 were boys and 103 were girls. By using the Gomez classification, the degree of malnutrition was analyzed among the children. It was observed that 150 children were facing malnutrition. 28% of the cases had first degree malnutrition, 14% and 17% had second and third degree condition. Stunted growth was observed in 130 children. There were 285 children with mild stunted growth; however 8% and 11% had moderate and severe form of stunted growth problem. Lack of education of mothers was seen to be directly linked with malnutrition in this study.

**Conclusion:** Health education about proper breast feeding and immunization of children should be provided to the parents to prevent malnutrition among children.

**Keywords:** Nutritional status, Risk factors, Child, Malnutrition

## INTRODUCTION

A condition in which there is no adequate calories and energy for the normal growth of the person is called as malnutrition. When there are not enough proteins left to carry out the physiological functions of the body<sup>1,2</sup>. Malnutrition can be due to not being able to use the calories or in some cases if the person has poor diet it can also lead to malnutrition. It was observed that severe form of malnutrition was responsible for the death of 51% of the children worldwide. As per literature malnutrition kills 3.5 million children annually<sup>3</sup>. Some of the features that are known to be the reasons of malnutrition include illiteracy, poor socioeconomic status, civil wars, lack of access to the tertiary care centers. Low protein in diet is often because of delayed weaning. The children that are put on solid food early have less chances of developing protein malnutrition<sup>4-5</sup>. The absence of any tertiary care center near the population can also be one of the reasons of malnutrition as sometimes the child is unable to consume calories and need medical help. There are some other pathological and environmental factors that trigger the malnutrition in case of children<sup>6</sup>. As per reports by United Nations, 850 million malnourished people are living in the world and most of them belong to developing countries<sup>7-8</sup>. As per a study carried out it was found that the prevalence of stunted growth and underweight condition was found in children of Western Kenya. Almost 57% of the population of Pakistan is also facing food scarcity as per reports by a National nutrition survey. Among them, there were 60% cases of food insecurity found in the rural areas and 40% in the urban areas. As per literature in case of population of Khyber Pakhtunkhwa the majority of the population was food secured and only 28% had food insecurity.<sup>9</sup> As per survey it was found that 43% of the children in Pakistan face stunted growth in rural areas, and there were 31% that had underweight condition. The causes of malnutrition are lack of breast feeding practices and repeated infections like diarrhea, pneumonia, respiratory illness, or by

drinking unhealthy water. Uneducated mothers have no idea about the significance of timely immunization and breast feeding the baby. And if illiteracy is combined with poor financial condition then it can lead to malnutrition in case of children. Food insecurity can also be one of the reasons of malnutrition in children as they have no access to basic health conditions, hygiene and clean drinking water. Therefore, proper health education must be given to parents so that they know about the importance of immunization and breast feeding. Moreover, education about family planning should also be provided to them so that large family size can be avoided.<sup>10</sup>

## MATERIALS AND METHODS

This is a cross-sectional study conducted on 250 children that visited the tertiary care center Shaikh Zayed Hospital, Rahim Yar Khan and Abbasi Shaheed Hospital, Karachi from May 2021 to April 2022. The study duration was one year. The cross-sectional study was carried out to find the nutritional status of children under the age of five years in Pakistan. The ethical committee and review board of the hospital approved the study. The physical growth and nutritional condition was evaluated by making use of basic anthropometric technique. Study was completed in a span of one year. Children from both genders were included in the study. There were 147 boys and 103 girls. Data was collected by non-probability sampling technique. Written consent was taken from the parents of the children. The sample size was calculated by making use of standard WHO methods. Semi-structured questionnaire was prepared for face to face interview with the parents. Factors were analyzed by SPSS version 16. Chi square test was also applied to the data and p value was calculated.

## RESULTS

This study was carried out to find the nutritional status of children under the age of 5 years in Pakistan. The study was carried out on 250 children that visited tertiary care unit. Among these, there were

147 males and 103 females. The parents were fully aware of the study and their written consent was taken. By making use of Gomez classification, malnutrition in the children was analyzed. It was found that among 150 children who had malnutrition, there were 99 children suffering from condition like Kwashiorkor and 51 had Marasmus. The degree of malnutrition was also studied and it was found that there were 28% children that belonged to first degree malnutrition, 14% had second degree and 17% had third degree malnutrition. Health condition and height was assessed and analyzed by using another parameter, and it was found that there were 130 children with stunted growth. Among these, there were 28% with mildly stunted growth, 8% had moderate and 11% were with severe stunted growth condition.

The data was also analyzed for breast feeding and weaning in these patients and presented in the table 3 and 4. There were 15% patients that were not immunized, however majority of the patients (59%) were fully immunized. The literacy rate was found to be quite low in mothers. And their children had conditions like Kwashiorkor and Marasmus. Among the 210 illiterate mothers with no education, 130 had their children suffering from malnutrition. The women having secondary level of education had no malnourished child as per studies.

Table 1: The degree of malnutrition

Degree of condition	No. of children n=250	Percentage (%)
Normal children	100	40
1 <sup>st</sup> degree of malnutrition	70	28
2 <sup>nd</sup> degree of malnutrition	36	14
3 <sup>rd</sup> degree of malnutrition	44	17

Table 2: Distribution of height of children as per their age

Normal	No. of children	Percentage (%)
Normal	120	48
Mildly stunted	71	28%
Moderately stunted	21	8%
Severely stunted	28	11%

Table 3: Breast feeding condition of malnourished children

Duration of breast feeding	No. of children	Percentage (%)
0-5 months	55	36
6-7 months	61	41
More than 8 months	34	23

Table 4: Age of initiation of weaning among children

Months	No. of children	Percentage
5-7 months	54	21%
8-12 months	165	66%
Above 1 year	31	12%

Table 5: Status of immunization according to educational level of mother

Education of mother	Non-immunized	Partially immunized	Fully immunized	P value
None	14%	34%	55%	0.003*
Primary	10%	12%	63%	
Middle	5%	10%	72%	
Secondary	-	-	100%	

Table 6: Children with Marasmus and Kwashiorkor

	Respiratory	CNS	GIT	Skin infection	P value
Normal (n=151)	40	31	29	51	0.000*
Marasmus (n= 47)	5	3	39	-	
Kwashiorkor (n=52)	6	3	43	-	

## DISCUSSION

The study was carried out to find the nutritional condition of children under the age of five years. The data was collected from children visiting tertiary care center and parents were fully aware of the study. The total sample size was 250 children, among these,

there were 147 males and 103 females. The data from the children was analyzed to look for health issues that hint towards malnutrition. It was found that there were 150 children found to be malnourished and their data was further analyzed to look for causes. As per report by World Health Organization the mortality rate was found to be 55% in case of malnourished children, therefore, this is need of the hour to overcome factors leading towards malnutrition<sup>11-12</sup>. In this study it was found that there were 28% children that suffered from first degree malnutrition, 14% had second degree condition and 17% of the children had third degree malnutrition. As per a study carried out to look for malnutrition in the population it was found that every second child in Pakistan is suffering from malnutrition.<sup>13</sup> According to another study, the first degree malnutrition was found in case of 33% of the population and second and third degree malnutrition was seen in case of 35 and 36% of children.<sup>14-15</sup>

In this study the stunted growth of children was also analyzed and it was found that there were 48% children that were showing normal growth but stunted growth was observed in case of other children. There were 285 cases having mildly stunted growth and 8% and 11% had moderate and severe form of stunted growth. As per studies breast feeding and malnutrition in children are significantly linked to each other.<sup>16-17</sup>. Therefore, malnutrition and breast feeding duration in children suffering from malnutrition was also analyzed and it was found that there were 36% children that had breast feeding up to 5 months, 41% children had breast feeding till 7 months, and there were 23% children that received breast feeding for more than 8 months of duration. As per study carried out it was found that there were only 14% children that received breast feeding for more than 8 months, and majority had received breast feeding for a shorter duration of time. The age of initiation of weaning was also studied in case of study group and it was found that there were 66% children that started weaning after 7- 12 months. Similar results were found by another study that revealed 49% of children starting weaning after 7 months. In our study 12% children started weaning after 1 year of age.

The educational status of parents especially mother plays very important role in the proper nourishment of the baby.<sup>18-19</sup> If mother will have basic knowledge about the kind of nutrition her baby should have, there are very less chances of baby developing malnutrition. As per a survey carried out it was found that there was a very minute prevalence of malnutrition in children where mothers had attained even secondary level of education.<sup>20</sup> It was found in our study that the immunization of children was also fully done in case of only educated mothers. Those who had middle or primary level of education had 72 and 63% of their children fully immunized. The educated mothers had more discipline towards immunizing their children at appropriate time.

The financial status of parents also plays an important role on the health of the children.<sup>21</sup> In many cases it was observed in rural areas that the parents had idea about the nutrition their children should have but due to lack of resources they were unable to provide basic necessities to them. As per studies it was found that families that had low monthly income mostly face malnutrition conditions. In this study the conditions like Marasmus and Kwashiorkor were also studied among the study sample. It was found that among the 150 malnourished children, there were 47 that had Marasmus and 52 of them were suffering from Kwashiorkor. There were 63 and 43 children admitted for respiratory, CNS and GIT related issues. The nutritional state of the children is one important aspect that should not be ignored as malnutrition has become quite common especially in the rural areas. The socio-economic status plays a very key role and it has a direct impact on the health of children<sup>22</sup>.

## CONCLUSION

In this study malnutrition was analyzed in children under the age of five in Pakistan. The studies revealed that lessened access to proper food due to socio-economic factors, late weaning, lack of

education in parents are some of the reasons that can lead to malnutrition in children.

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