ORIGINAL ARTICLE

ASSESSMENT OF NUTRITIONAL STATUS OF CHILDREN AGED 1-5 YEARS ATTENDING THE OUTDOOR PATIENTS DEPARTMENT OF SHEIKH ZAYED HOSPITAL, RAHIM YAR KHAN, PAKISTAN

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ABSTRACT

Background: Enforcement of corrective nutritional measures to combat malnutrition in children requires local data for planning strategies.

Objective: To assess the nutritional status of children, 1-5 years of age, presenting at the Children Outdoor Patient Department (OPD).

Study Design: Descriptive, Cross-sectional.

Place and Duration of Study: Sheikh Zayed Hospital, Rahim Yar Khan, Pakistan, June to July 2022(02 months).

Patients and Methods: All children, 1- 5 years of age, presenting to OPD were enrolled in the study, by convenience sampling method. Data was collected through a questionnaire that contained information regarding the assessment of nutritional status of children according to WHO growth standards. The data was compared with the growth charts and summarized into tables, graphs and bar diagrams by using SPSS software 23.

Results: A total of 56 (62.2%) children had normal weight, 32 (35.6%) were underweight and 2 (2.2%) were overweight. The gender-specific underweight percentage in boys was 41.7% while in girls it was 26.5%.

Conclusion: Considerable proportions of children presenting in the OPD were underweight. Those who were not properly breastfed, had poor vaccination status and low socio-economic status were mostly malnourished. Proper breastfeeding, immunization and monitoring of growth of children should be done to ensure good nutritional health of children.

Key words: *Age 1-5 years, Assessment, Children, Nutritional status*

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INTRODUCTION

Nutrients are the organic or inorganic contents of the food that are responsible for multiple functions and so protect the body from disorders. A balanced nutrition ensures optimal physiological growth and prevents disease. The science of nutrition principally identifies two classes: macro and micronutrients. Both macronutrients (Proteins, Fats and Carbohydrates) and micronutrients (Vitamins & Minerals) are crucial for growth. Lack of even one of them can have devastating consequences[1-3].

Stunting, wasting, and being underweight are the indicators of malnutrition in children. Stunting results from prolonged nutrient insufficiency and repeated infections while wasting is caused by acute food deficiency & illness. Being underweight combines reduced linear growth and weight for length/height[4] and is a composite indicator that encompasses both acute (wasting) & chronic (stunting) malnutrition[5]. Various types of malnutrition might concurrently be found.

A correct proportion of nutrients is necessary for growth, development and proper functioning of the body. The pediatric age at each period has its own specific requirements & characteristics, and any specific nutrient deficiency can delay growth and/or compromise specific organ functions [6].

Study of nutritional status of children measures nutritional

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imbalance or malnourishment resulting in undernutrition. It aids in identifying high-risk populations and evaluating the influence of various epidemiological factors in nutritional insufficiency. Nutrient deficiency may have specific effects on physical growth and development like marasmus, kwashiorkor, night blindness, nutritional anemia etc. Some causes of malnutrition are: Failure of lactation, early weaning due to second pregnancy, poverty (meat, milk and eggs are not appropriately consumed), cultural pattern (best food is served to males), lack of immunization, and lack of family planning. Other causes include infections, congenital diseases, metabolic disorders etc. Malnutrition in Pakistani children is linked to both maternal and child-related causes, majority of them can be prevented[7].

CAPSULE SUMMARY

More than one-third of the children in this study were underweight. Improper breastfeeding, poor vaccination and low socio-economic status were the main contributing factors. Children from rural background were more effected than the urban population.

More than 50% of children under the age of five, die from acute malnutrition alone, which results in the deaths of 3.5 million children worldwide each year[8]. In Pakistan, population of malnourished children is 58%. These results were determined in a study conducted by National Nutritional survey in 2018[9]. Major factor is improper distribution of food in different areas e.g. in KPK the malnourished children population is up to 58.9% while in Baluchistan this percentage is up to 68% which shows the absence of primary health care and proper food in respective areas[10,11]. According to a survey, children who were underweight, stunted, or wasted had a prevalence of 46.2%, 62.6%, and 11.1%, respectively[12]. According to a study conducted in India, children between the ages of three and twenty-three months had an increasing percentage of underweight and stunted weight. The highest incidences of wasting and low BMI for age were observed at birth[13]. With 3.5% of stunted children under the age of five, the United States is on track to fulfil its target[14].

In order to combat malnutrition, some strategies should be adapted like Special Nutrition Program, Integrated Child Development Services, Immunization Program, Nutritional vitamin A Deficiency Program, and education through mass media. These strategies are dependent upon local logistics and dynamics. For this purpose, local data is required for the assessment of the brunt of the problem. The objective of our study was to evaluate the nutritional status of children aged, 1-5 years, presenting at the Children Out Patient Department (OPD)of Sheikh Zayed Hospital, Rahim Yar Khan, Pakistan.

PATIENTS AND METHODS

Ethical approval for the study was sought from the Institutional Review Board. All children from 1 to 5 years of age, presenting in the Children OPD from June to July 2022, were selected by non-probability convenience sampling technique. Children whose parents were unwilling to participate were excluded from the study.

After getting informed consent from respondents, data was collected through a preformed questionnaire. It contained basic and specific information about the nutritional status of children, 1-5 years of age, according to WHO growth standards. Weight was measured by weight scale and height by measuring tape or meter rod. The data was compared with the growth charts and summarized into tables, graphs and bar diagrams by using SPSS software 23. According to WHO criteria the data was analyzed by descriptive analysis by frequency distribution of variables with nutritional statuses.

RESULTS

Total 90 children were assessed according to WHO criteria. The mean age of participants was 33.3±15 months. Among all participants, 56 (62.2%) were males and 34 (37.8%) were females. Out of the total (n=90), 46(51.1%) children were from the age group 18-36 months. The 14 (15.3%) children fell in age groups 12-18 months, 12 (13.6%) in 36-48 months, and 18 (20%) in 48-60 months.

The mean weight of participants was 10.5±3.9 kg. Out of 90 children presented in the OPD, 62.2% were normal weight, 35.6% underweight and 2.2% overweight (Figure1).

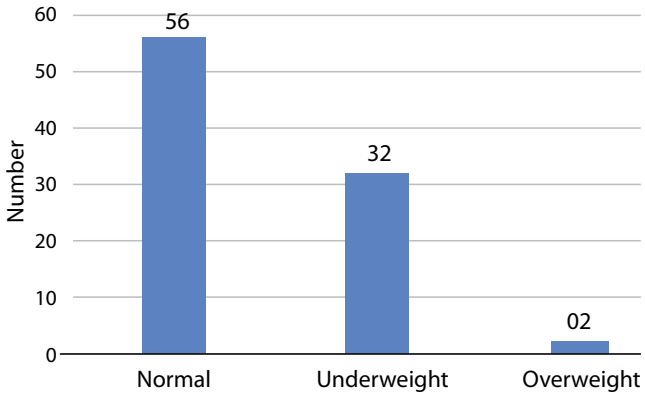

Figure 1: Nutritional Status of the Children

A total of 47 (52.2%) children had complete immunization, 29 (32.2%) had partial and 14 (15.6%) had none. Out of 90 children, 59 (65.5%) belonged to families of low, 21 (24.4%) middle and 9 (10%) high socio-economic status. As compared to middle and high socioeconomic status, a significantly large number of children (47.5%) of low socioeconomic status were underweight. Regarding gender, a large number of male children (41%) were in the undernutrition group. Out of the children, 50 (55.6%) came from rural areas and 40 (45.4%) from urban areas. Rural children (44%) were more malnourished as compared to urban children (32.5%). A total of 61 (67.8%) children were breastfed and 29 (32.2%) were fed formula milk. A total of 12 (41.4%) children who were not breastfed were

Table 1: Association of nutritional status of children with other variables (n=90)

Variable	Nutritional Status			p-value
	Normal n(%)	Undernutrition n(%)	Overnutrition n(%)	
Socioeconomic status				
Low	31(52.5)	28 (47.5)	0 (0)	0.01
Middle	17(80.9)	4 (1)	1 (4.5)	
High	8 (88.9)	0 (0)	1 (11.1)	
Sex				
Male	32(57.1)	23 (41)	1 (1.7)	0.36
Female	24(70.6)	9 (26.5)	1 (2.9)	
Residence				
Rural	27 (54)	22 (44)	1 (2)	0.53
Urban	26 (65)	13 (32.5)	1 (2.5)	
Breastfeeding				
Yes	40 (65)	20 (32.8)	1 (1.6)	0.59
No	16(55.2)	12 (41.4)	1 (3.4)	

underweight, while in breastfed children, 20 (32.8%) were underweight (Table 1).

DISCUSSION

Out of total children, 32 (35.6%) were underweight and 2 (2.2%) were overweight. In a similar study conducted in Quetta, Baluchistan 48.1% children were underweight[11]. A study conducted in Aboottabad showed 21% underweight children and implicated macro-nutrient deficiencies with infections as the major cause[15]. Another study from the same city showed that underweight students were maximum in public school setups as compared to private schools[16]. Another study conducted in Pakistan also supported our results showing underweight percentage higher in rural areas i.e., 67%, as compared to urban area 45.3%. It was due to many reasons like poverty and non-availability of health care services etc[17]. According to our study malnutrition is more in rural areas and in child with low socioeconomic class.

In a study conducted in Abakaliki metropolis, Ebonyi State, Nigeria, the prevalence of under & overnutrition was 15.7% and 2.1% respectively. Prevalence of underweight was 8%, that of thinness 7.2%, stunting 9.9%, overweight 1.4% & obesity 0.7%[18]. Another study, conducted in Nghean, Vietnam, is also in agreement with our study. According to which, 44.3% children were found underweight and stunted. The highest proportion of underweight children were between 3-4 years of age and highest proportion of stunting was observed in children of 12-23 months. Moreover, the mean z-score differences between males and females were also statistically significant[19]. It also collaborates with our results. In short, multiple factors affect the nutritional growth of the child. Mother's milk and balanced diet are the most essential need for the proper growth of the children.

A similar study, conducted in Multan, also favoring our study concludes prevalence of malnutrition due to lower socioeconomic status among major populations in the community specifically in rural areas[20]. A research in Nankana Sahab Punjab found socioeconomic status and food insecurity as significant positive predictors for stunting among children[21].

According to the 2022 Global Nutrition Report, Pakistan has 37.6 % stunting in children under 5 years which is the highest in the South Asia region (the average in the region is 21.9%). The results of the Global Nutrition Report are in accordance with our study. The report also states that Pakistan is 'on course' to reach the global nutrition targets for young child nutrition for which there was sufficient data to assess progress[22]. IPC Acute Malnutrition Analysis March 2023 – January 2024 stated that over two million children in the flood-hit areas of Pakistan had acute malnutrition in the aftermath of the 2022 flooding[23].

We conducted this study on a small scale in district Rahim Yar Khan due to which the results could not be generalized. Nonetheless, the results are an indication of the situation prevailing in this district concerning the nutritional status of children.

CONCLUSION

The nutritional status of children depends on their socioeconomic status, proper breastfeeding, and immunization. Children who were residents of rural areas and had poor financial status were malnourished, so proper breastfeeding and monitoring of the growth of children should be done to ensure good nutritional. Complete immunization of children should be done according to EPI schedule. Children should be breastfed, at least up to 6 months, according to WHO, with

ongoing breastfeeding along with complementary food up to two years of age, and awareness about weaning should be created.

In view of the above demonstrated results, it is suggested that similar area-based studies, with bigger sample sizes should be carried out in Pakistan to figure out the actual brunt and dynamics of the problem. This will help the policymakers to develop initiatives to address the actual malnutrition status among the children< 5 years of age.

AUTHORS' CONTRIBUTION

Naila Jabeen, Rafay Ur Rehman Cheema, Shazia Sultan	Drafting the Article
Ghazala Yasmeen Iqbal, Naila Jabeen, Shazia Sultan, Tariq Hussain	Analysis and interpretation of data
Ghazala Yasmeen Iqbal, Hafiz Umer Farooq, Rafay Ur Rehman Cheema	Conception and design
Hafiz Umer Farooq, Naila Jabeen, Rafay Ur Rehman Cheema	Acquisition of data
Ghazala Yasmeen Iqbal, Hafiz Umer Farooq, Naila Jabeen, Rafay Ur Rehman Cheema, Shazia Sultan, Tariq Hussain	Critical revision

REFERENCES

1. EFSA (European Food Safety Authority), 2017. Dietary Reference Values for nutrients Summary report. EFSA supporting publication. 2017: 14(12):e15121.98pp.
2. Carreiro AL, Dhillon J, Gordon S. et al. The Macronutrients, Appetite, and Energy Intake. Annu Rev Nutr. 2016;36:73–103.
3. Shergill-Bonner R. Micronutrients. Paediatr Child Health. 2017;27(8);357–62.
4. Sinha RK, Richa Dua R, Bijalwan V, et al. Determinants of Stunting, Wasting, and Underweight in Five High-Burden Pockets of Four Indian States. Indian J Community Med. 2018; 43(4):279-283.
5. De Onis M, Blössner M. The World Health Organization Global Database on Child Growth and Malnutrition: methodology and applications. Int J Epidemiol. 2003;32(4):518-526.
6. Savarino G, Corsello A, Corsello G. Macronutrient balance and micronutrient amounts through growth and development. Ital J Pediatr. 2021; 47 (1): 109-122.
7. Khan S, Zaheer S, Safdar NF. Determinants of stunting, underweight and wasting among children < 5 years of age evidence from 2012-2013 Pakistan demographic and health survey. BMC Public Health. 2019 ;19(1):358-372.
8. Park SE, Kim S, Ouma C, et al. Community management of acute malnutrition in the developing world. Pediatr Gastroenterol Hepatol Nutr. 2012 ;15(4):210-219.
9. Arshad K. National nutrition survey of 2018 key finding report, J Ayub Med Coll Abbottabad. 2010;20(3):111-112.
10. Mehmood Y, Ahad B, Riaz Gul R, et al. Nutritional Status of Children Under 5 years of Age in Three Tertiary Care Hospitals of Peshawar. J Islamabad Med Dent Coll.2016;5(2):50-53.
11. Achakzai P, Khan R. Nutritional status and associated factors among children less than five years of age in tehsil zarghoon town, district Quetta, Baluchistan. J Ayub Med Coll Abbottabad. 2016 ;28(1):146-151.
12. Al-Sobaihi S, Nakamura K, Kizuki M. Undernutrition among children/ under 5 years of age in Yemen: Role of adequate childcare provided by adults under conditions of food insecurity. J Rural Med. 2016;11(2):47-57.
13. Ramachandran P, Gopalan HS. Assessment of nutritional status of children in Indian pre school children using WHO 2006 growth standards. Indian J Med Res. 2011;134(1):47-53.
14. United States of America. The burden of malnutrition at a glance 2022 [Internet]. Creative Commons Attribution BY-NC-ND;[cited 2022 August]. Available from https:// globalnutritionreport.org/resources/ nutrition-profiles/north-america /northern-america/united-states-america/.
15. Lodhi HS, Rehman M, Lodhi FS, et al. Assessment of nutritional status of 1-5 year old children in an urban union council of Abbottabad. J Ayub Med Coll Abbottabad. 2010;22(3):124-127.
16. Siddique S, Ayub M, Shore N, et al. Nutritional status of primary school children at Abbotabad. J Ayub Med Coll Abbottabad, 2013;21(5): 123-126.
17. Anwer I, Awan JA. Nutritional status comparison of rural with urban school children in Faisal Abad District, Pakistan. Rural Remote Health.2003;3(1):130- 136.
18. Umeokonkwo AA, Ibekwe MU, Umeokonkwo CD, et al. Nutritional status of school age children in Abakaliki metropolis, Ebonyi State, Nigeria. BMC Pediatric. 2020 ;20(1):114-122.
19. Hien NN, Kam S. Nutritional status and the characteristics related to malnutrition in children under five years of age in Nghean, Vietnam. J Prev Med Public Health. 2008 ;41(4):232-240.
20. Ahmad D, Afzal M, Imtiaz, A. Effect of socioeconomic factors on malnutrition among children in Pakistan. Futur Bus J. 2020 ;6(1) : 30-40.
21. Razzaq R, Majeed MF, Ali H. Effects of Socioeconomic Status and Food Insecurity on Stunting among Children aged 06-59 Month. Pakistan Soc Sci Rev. 2024; 06(02):986-995.
22. Pakistan. The burden of malnutrition at a glance2022. [Internet]. Creative Commons Attribution BY-NC-ND;[cited 2022 October25]. Available from https://globalnutritionreport.org/resources/nutrition-profiles/asia/southern-asia/pakistan/.
23. Pakistan: IPC Acute Malnutrition Analysis - March 2023 - January 2024[Internet]. OCHA; [cited Jan 2024]. Available from https:// reliefweb.int/report/pakistan/pakistan-ipc-acute-malnutrition-analysis-march-2023-january-2024.
