

NUTRITIONAL STATUS OF PRIMARY SCHOOL CHILDREN OF NAUDERO, LARKANA DISTRICT, SINDH

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ABSTRACT

Objectives: To Assess the Nutritional Status of Primary School Children **Design and Method:** A Cross sectional study was conducted at Govt. Primary School of Naudero Taluka Ratodero District Larkana from August 2017 to October 2017. Data was collected from enrolled students' of primary school of Naudero through simple random sampling. Children of 05-10 years were included whereas less than 5 years and more than 10 years were excluded. Stadio meter and digital weighting scale were used as tool and Anthropometric measurements were done on WHO Anthro plus version 3.2.2, statistical analysis SPSS 21.0 Version was used and descriptive frequencies, percentages, and tables were generated. Ethical letter were signed from institutional towards concerned authority and research ethics were maintained. **Results:** Demographic analyzed in which primary schools children of having age maximum are 10 and minimum is 5 mean is $7.013 \pm .64638$. Gender analyzed in which primary schools children of having gender male 116(77.3%) which is maximum and the minimum are female 34(22.7%) Birth order analyzed in which primary schools children of having 6-10 birth order 24(16.1%) which is maximum and the minimum are 1-5 birth order 126(83.9%). Weight analyzed in which primary schools children of having 41-50 weight 2(1.4%) which is highest and the lowest are 11-20 weight 60(41.1%). Height analyzed in which primary schools children of having 49-60 height 28(18.6%) which is highest and the lowest are 19-28 height 34(22.6%). **Conclusion:** Better nutritional status was associated with increased health related Quality of life in school children. Early diagnosis through school children screening and improved nutrition provides an opportunity to enhance quality of life and body functioning.

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INTRODUCTION

In the face of the economic growth perceived in developing countries, malnutrition and mostly under nutrition is still extremely prevalent.¹ Contemporarily, a growing frequency of heaviness and its interrelated chronic diseases is being perceived in these countries.² Increasing fatness is already a major concern in developed countries for pre- School as well as school.³ In developing countries, this rising epidemic along with the determination of under nutrition and infections represents the 'Double Burden of

Malnutrition (DBM), which is appropriate of great concern for African countries.⁴ Certainly, the DBM is a real risk at the population, household and even individual level, and it is now perceived among Schools. Rural areas of developing countries are generally prioritized as regards nutrition intervention, because under nutrition is more common than in urban areas.⁵ But, a shift is happening and children in the cities are at risk of both over-nutrition and under nutrition.^{5,6} Some studies are now highlighting the problem of micronutrient shortages in cities and among

Schools in particular.⁷ School children are intensely affected by anemia, vitamin A deficiency and parasitic infections with adverse effect on their nutritional status, as well as on their cognitive development and performance.⁸ Unfortunately, the rareness of nutrition information on this susceptible population makes it difficult to define appropriate intervention strategies.^{9,10} Demographic and Health Surveys (DHS), which provide nutritional status data at national level, do not include school children's. Still, the few presented data usually affect to rural School children so that nutrition programs are more likely to be carry out in rural areas than urban as perceived in Primary school of Naudero, Larkana. Recent surveys at national level in Pakistan exposed a high frequency of malnutrition among rural school children's.¹¹

The aim of the present study was to assess the nutritional status of School children attending private and public schools covering both the urban and the rural areas of Larkana. Aims is to improve the Nutritional Status of School Children and objective is to assess the Nutritional Status of Primary School Children

METHODOLOGY

A Cross sectional study was conducted in Primary School of Naudero Taluka Ratodero District Larkana in between August 2017 to December 2017. Study population was children of Primary School of Naudero and Sampling technique was Simple random sampling where sample size calculation according to the prevalence rate and formula $(n = z^2 p (1-p) / d^2)$ with margin of error taken as 5% after adding 10% of inflation and $n = 150$. Sample recruitment was Primary school Children of age in between 5-10 years included and age less than 5 years and more than 10 years were excluded from the study. Institutional permission was taken as consent. Data was analyzed on anthropometric measurements were done on WHO Anthro plus version 3.2.2, statistical analysis SPSS 21.0 Version was used and descriptive frequencies,

percentages, and tables were generated.

DATA COLLECTION TOOL

Pre structured guided and validated Questionnaire/Performa was developed with socio demographic profile of participants and physical/clinical and anthropometric measurement and dietary habits and regarding their children.

- Stadio-meter
- Digital weighing scale

Weight (WT) measured on weight electronic scale/device was used to measure weight (Wt). Prior positioning was done; as sit in upright or lie down. The child must not clutch anything for support. A normal of 3 readings is taken and estimations are perused to the closest 0.01kg.

Length (Lt): Length of the children was measured through the height scale. No shoes, socks or headgear ought to be worn. Head, shoulders and backside touches the backboard/level board. A normal of three readings was taken and estimations are perused to the closest 0.1cm

Rules to follow results:

Weight for age (WAZ)

- **Severe under nutrition:**(WAZ) score < -3 SD
 - **Moderate under nutrition:**(WAZ) score < -2 SD
 - **Normal status:**(WAZ) score more > -2 SD
- Height for age (HAZ)**
- **Severe stunting :**(HAZ) score < -3 standard deviation
 - **Moderate stunting: (HAZ)** score < -2 standard deviation
 - **Normal status :(WAZ)** score > -2 standard deviation

RESULTS

Data was collected and analyzed as below

| Table 1. Demographic | | | | |
|----------------------|--------------|---------|----------|----------------|
| | Mean | Minimum | Maximum | Std. Deviation |
| Age | 7.9133 Years | 5 Years | 10 Years | 1.64638 |

Demographic analyzed in which primary schools children of having age maximum is 10 and minimum is 5 mean is 7.0133 and std. deviation is 1.64638

| Age | Frequency | Percent |
|-------|-----------|---------|
| 5.00 | 16 | 10.7 |
| 6.00 | 21 | 14.0 |
| 7.00 | 18 | 12.0 |
| 8.00 | 32 | 21.3 |
| 9.00 | 31 | 20.7 |
| 10.00 | 32 | 21.3 |

N=150

Age analyzed in which primary schools children of having age 10 years of old are 32(21.3%) which is maximum and the minimum are 16(10.7%) of having age 5 years old. 21(14.0%) others are 6 years old, 18(12%) and 7 years old are 18(12.0%) and 8 years old are 32(21.3) and 9 years 31(20.7%) and 10 years old are 32(21.3%).

| Gender | Frequency | Percent |
|--------|-----------|---------|
| Male | 116 | 77.3 |
| Female | 34 | 22.7 |

N=150

Gender analyzed in which primary schools children of having gender male 116(77.3%) which is maximum and the minimum are female 34(22.7%).

| Class | Frequency | Percent |
|-------|-----------|---------|
| 1.00 | 30 | 20.0 |
| 2.00 | 30 | 20.0 |
| 3.00 | 30 | 20.0 |
| 4.00 | 30 | 20.0 |
| 5.00 | 30 | 20.0 |

N=150

Class analyzed in which primary schools children of having 5 class 30(20.0%) which is maximum and the minimum are 1 class 30(20.0%) and others are 2 class 30(20.0%) and 2 class are 30(20.0%) and 3 class are 30(20.0%) and 4 class are 30(20.0%).

| birth order | Frequency | Percent |
|-------------|-----------|---------|
| 1-5 | 126 | 83.9 |
| 6-10 | 24 | 16.1 |

N=150

Birth order analyzed in which primary schools children of having 6-10 birth order 24(16.1%) which is maximum and the minimum are 1-5 birth order 126(83.9%).

| Weight (kg) | Frequency | Percent |
|-------------|-----------|---------|
| 11-20 | 60 | 41.1 |
| 21-30 | 66 | 43.91 |
| 31-40 | 22 | 14.6 |
| 41-50 | 2 | 1.4 |

N=150

Weight analyzed in which primary schools children of having 41-50 weight 2(1.4%) which is highest and the lowest are 11-20 weight 60(41.1%).

| Height | Frequency | Percent |
|--------|-----------|---------|
| 19-28 | 34 | 22.6 |
| 29-38 | 65 | 43.4 |
| 39-48 | 23 | 15.4 |
| 49-60 | 28 | 18.6 |

N=150

Height analyzed in which primary schools children of having 49-60 height 28(18.6%) which is highest and the lowest are 19-28 height 34(22.6%).

Nutritional status: anthropometric measures

| Variable | Minimum | Maximum |
|---------------|---------|---------|
| Weight (Kg) | 14 | 50 |
| Height (inch) | 19 | 60 |

N=150

Discloses the details of anthropometric measure for the school children of the respondents, where WHO's nutrition survey version 3.2.2(2007) were used to capture those measures. The mean weight of the school child was 9.6 Kg with the minimum weight of 14 kg and maximum weight of 50 Kg. minimum height of 19 inch, and maximum

height of 60 inch. It is important to mention that most of the school children were between the ages 60-120 months.

Weight-for-length/height

| Age (months) | % > +1SD | % > +2SD | % > +3SD |
|--------------|----------|----------|----------|
| 60-80 | 49.9 | 49.9 | 0 |
| 81-100 | 0 | 0 | 0 |
| 101-120 | 60 | 3.3 | 0 |
| 60-120 | 55.5 | 4.5 | 0 |

N=150

Shows that for 60-80 months of age, z-scores lied between greater than $\pm 1SD$ (normal), and $\pm 2SD$ showing having high weight for length or height. Most school children of having 101-120 months were within the normal range for weight for height. Therefore, none of the school children under study were found having acutely malnourished.

Length/height-for-age

| Age (months) | N | < -3SD | < -2SD |
|--------------|------|--------|--------|
| 60-80 | 4.5 | 00 | 49.95 |
| 81-100 | 10.5 | 0 | 85.65 |
| 101-120 | 135 | 10.05 | 128.4 |
| 60-120 | 100 | 9 | 123 |

N=150

Clearly outlines that 6% of the school children are falling within <-3SD, and 82%<-2SD indicative of chronic mal nutrition. Among those chronically malnourished, majority belonged to the age of 101-120 months old.

DISCUSSION

The study provides anthropometric data on the nutritional status of school children in Naudero, Larkana. Nutritional status is a fundamental component of the overall health of an individual, and provides an indicator of the well-being of children living in a particular region (12). In this importance of the nutritional status of children in the developing countries must emphasized, not

only for the improvement of health of children in the coming generation, but also for the overall development of the concerned region in future. The results of this present study reflect a Demographic examined in which maximum age is 10 years and minimum age is 5 years Mean is 7.9133 and Std. Deviation is 1.64638. Age analyzed in which age 10 years of old are (21.3%) which is maximum and the minimum are (10.7%) of having age 5 years old. Gender analyzed in which having gender male (77.3%) which is maximum and the minimum are female (22.7%). Class analyzed in which having 5 class (20.0%) which is maximum and the minimum are 1 class (20.0%). Birth order analyzed in which having 6-10 birth order (16.1%) which is maximum and the minimum are 1-5 birth order (83.9%). Weight analyzed in having 41-50 weight (1.4%) which is highest and the lowest are 11-20 weight (41.1%).But in Sindh; according to statistics, 44% of children are stunted. This is third uppermost percentage of stunted children in the world and resources that more than 9.6 million Pakistani youngsters have experienced chronic nutrition scarcity in uterus and/ or during early childhood (13.14).Height analyzed in which having 49-60 height (18.6%) which is highest and the lowest are 19-28 height (22.6%). anthropometric measuresthe mean weight of the school child was 9.6 Kg with the minimum weight of 14 kg and maximum weight of 50 Kg. Mean height was 72.32cm with minimum height of 19 inch, and maximum height of 60 inch. It is important to mention that most of the school children were between the ages 60-120 months.

CONCLUSION

Better nutritional status was associated with increased health related Quality of life in school children. Early diagnosis through school children screening and improved nutrition provides an opportunity to enhance quality of life and body image perception.

Recommendations

Govt. should take keen interest to provide safe pure water, routinely checkup setting must be introduced inside school, nutritional follow up

series should be monitored, and awareness programs among parents must be introduced regarding importance of nutrition in children, exercises, balance diet and knowledge about living household and Information regarding sanitation

Limitation

Study duration was limited their budget allocation was not remarkable and such population cannot be generalized to another population.

REFERENCES

1. Adriana Hernandez Santana, Prabhjot Singh, Sandra Tamara ManceroBucheli, Martha Saboya, Mirian Yolanda Paz, (2016), Prevalence and Intensity of Soil-Transmitted Helminthiasis, Prevalence of Malaria and Nutritional Status of School Going Children in Honduras, doi:10.1371/journal.pntd.0003248.
2. Ana Lourdes Sanchez, Jose Antonio Gabrie, Mary-Theresa Usuanlele, Maria Mercedes Rueda, Maritza Canales, Theresa W. Gyorkos, (2013), Soil-Transmitted Helminth Infections and Nutritional Status in School-age Children from Rural Communities in Honduras, doi:10.1371/journal.pntd.0002378,
3. Cuili Wang, Robert L. Kane, DongjuanXu, Lingui Li, Weihua Guan, Hui Li, QingyueMeng, Maternal Education and Micro-Geographic Disparities in Nutritional Status among School-Aged Children in Rural Northwestern China, (2013), doi:10.1371/journal.pone.0082500.
4. Charles Daboné, Hélène F Delisle and Olivier Receveur, Poor nutritional status of school children in urban and peri-urban areas of Ouagadougou (Burkina Faso), (2011), <http://www.nutritionj.com/content/10/1/34>
5. Daniel J Raiten, Fayrouz A SakrAshour, A Catharine Ross, Simin N Meydani, Harry D Dawson, Charles B Stephensen, Bernard J Brabin, Parminder S Suchdev, Ben van Ommen and the INSPIRE Consultative Group, (2015), Inflammation and Nutritional Science for Programs/Policies and Interpretation of Research Evidence (INSPIRE), doi:10.3945/jn.114.194571. The Journal of Nutrition Supplement—Inflammation and Nutritional Science for Programs/Policies and Interpretation of Research Evidence (INSPIRE): Proceedings,
6. Daniel Hoffman¹, Thomas Cacciola, Pamela Barrios and James Simon, (2017), temporal changes and determinants of childhood nutritional status in Kenya and Zambia, DOI 10.1186/s41043-017-0095-z.
7. Daniel T Goon¹, Abel L Toriola¹, Brandon S Shaw, Lateef O Amusa, Makama A Monyeki, OluwadareAkinyemi and Olubola A Alabi, (2011), anthropometrically determined nutritional status of urban primary school children in Makurdi, Nigeria, <http://www.biomedcentral.com/1471-2458/11/769>
8. Elizabeth E. Dawson-Hahn, Suzinne Pak-Gorstein, Andrea J. Hoopes, Jasmine Matheson, (2016), Comparison of the Nutritional Status of Overseas Refugee Children with Low Income, doi:10.1371/journal.pone.0147854
9. Elizabeth W Kimani-Murage, Shane A Norris, John M Pettifor, Stephen M Tollman, Kerstin Klipstein-Grobusch, Xavier F Gómez-Olivé, David B Dunger and Kathleen Kahn, (2011). Nutritional status and HIV in rural South African children, <http://www.biomedcentral.com/1471-2431/11/23>
10. H. Marschner, E. A. Kirkby and I. Cakmak, (1995), Effect of mineral nutritional status on shoot-root partitioning of photo assimilates and cycling of mineral nutrients, Journal of Experimental Botany · August 1996 DOI: 10.1093/jxb/47.Special_Issue.1255 · Source: PubMed.
11. Henk-Jan Brinkman, Saskia de Pee, IssaSanogo, LudovicSubran, and Martin W. Bloem,(2017), High Food Prices and the Global Financial Crisis Have Reduced Access to Nutritious Food and Worsened Nutritional Status and Health, The Journal of Nutrition Supplement: The Impact of Climate



Change, the Economic Crisis, and the Increase in Food Prices on Malnutrition.

12. Irene UleNgoleSumbele, Orelie S. MtopiBopda, Helen KuokuoKimbi, Teh Rene Ning and Theresa Nkuo-Akenji, (2015), Nutritional status of children in a malaria meso endemic area: cross sectional study on prevalence, intensity, predictors, influence on malaria parasitaemia and anemia severity, DOI 10.1186/s12889-015-2462-2
13. Bhattacharyya S, Ferrari M. Age-specific mixing generates transient outbreak risk following critical -level vaccination, *Epidemiology and Infection*. 2017;145(1):12.
14. Bhutta ZA, Hafeez A, Rizvi A, Ali N, Khan A, Ahmad F, et al. Reproductive, maternal, newborn, and child health in Pakistan: challenges and opportunities. *The Lancet*. 2013;381(9884):2207-18

AUTHORSHIP AND CONTRIBUTION DECLARATION

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| 2 | Muhammad Ibrahim Ansari | Conception and Design | |
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| 4 | Muhammad Siddique Ansari | Data collection | |
| 5 | Mazhar ul Haq Nizamani | Expert Review | |
| 6 | Shahida Khan | Table and graph formation | |