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International Journal of Current Research
Vol. 9, Issue, 09, pp.57122-57125, September, 2017

INTERNATIONAL JOURNAL OF CURRENT RESEARCH

ISSN: 0975-833X

RESEARCH ARTICLE

A STUDY ON NUTRITIONAL STATUS OF CHILDREN OF 6 MONTHS TO 6 YEARS OF AGE ATTENDING THE ANGANWADI CENTRES IN RURAL MEERUT

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ARTICLE INFO

Article History:
Received 20th June, 2017
Received in revised form
17th July, 2017
Accepted 25th August, 2017
Published online 29th September, 2017

Key words:

Malnutrition,
Under-nutrition,
Stunting,
PEM,
ICDS.

ABSTRACT

Introduction: Early childhood, that is the first six years constitutes the most crucial period in life, when the foundations are laid for cognitive, social and emotional language, physical/motor development and cumulative lifelong learning. Child malnutrition may be defined as a pathological state resulting from inadequate nutrition, including under nutrition (protein-energy malnutrition) due to insufficient intake of energy and other nutrients. Cases with mild-to-moderate malnutrition are likely to remain unrecognized because clinical criteria for their diagnosis are imprecise and are difficult to interpret accurately.

Aims & Objectives: To study nutritional status of registered children 6 months to 6 years of age among rural children attending the anganwadi centres and also to find out the determinants related to nutritional status in children.

Materials & Methods: A cross-sectional study was conducted among the children of block Parikshitgarh attending the anganwadi centres. Simple random sampling was done and a sample of 397 was drawn from the study population. A pretested structured questionnaire was used to collect data and anthropometric measurements were recorded. Data was entered and analyzed using SPSS 19.0 version.

Results: Only 29.4% of the registered children were regularly attending the anganwadi centres. Prevalence of underweight and stunting was found to be 1.0% and 1.8% respectively. Prevalence of underweight was higher among the participants of joint family (2.3%).

Conclusion: The findings of study shows that only 29.4% of children between the age group of 6 months to 6 years are attending the anganwadi centres regularly and the prevalence of underweight and stunting were 1.0% & 1.8% respectively, that is very low in comparison to other studies conducted in this area, so more and more children should be mobilized to get the benefits provided at anganwadi centres to prevent malnutrition.

Citation: Neha Shukla, 2017. "A study on nutritional status of children of 6 months to 6 years of age attending the anganwadi centres in rural Meerut", *International Journal of Current Research*, 9, (09), 57122-57125.

INTRODUCTION

Malnutrition remains the world's most serious health problem and the single biggest contributor to child mortality, nearly one third of the children in the developing world are either underweight or stunted and more than 30% of the developing world's population suffer from micronutrient deficiencies. (Singh, 2014) Early childhood, that is the first six years constitutes the most crucial period in life, when the foundations are laid for cognitive, social and emotional language, physical/motor development and cumulative lifelong learning**.** (Sathyanath *et al*., 2013) People are malnourished if their diet does not provide adequate calories and protein for growth and maintenance or they are unable to fully utilize the food they eat due to illness. (UNICEF. Malnutrition, 2016)

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Child malnutrition may be defined as a pathological state resulting from inadequate nutrition, including under nutrition (protein-energy malnutrition) due to insufficient intake of energy and other nutrients; over nutrition (overweight and obesity) due to excessive consumption of energy and other nutrients; deficiency diseases due to insufficient intake of one or more specific nutrients such as vitamins or minerals.[4] Malnutrition in India is in a state of "Silent Emergency" and there by demand greater priority than ever before, the nutritional state of population therefore critical to the development and well-being of the nation. (Singh, 2014) In India, 47.9% children under the age of 5 years are stunted, 43.5% are underweight and 20% are wasted. (WHO, 2016) Though, poverty is a major underlying cause, scores of other factors such as socio-demographic, socio-cultural and lifestyle practices contribute significantly to the problem of malnutrition. (Mehta *et al*., 2014) With a view to provide integrated health services i.e. nutritional, environmental and

social services to the identified beneficiaries through anganwadi centres, Integrated Child Development Services (ICDS) project was launched on 2nd Oct. 1975 by the Government of India. (Narain *et al*., 2013) The key function of anganwadi worker is to provide supplementary nutrition to the children below 6 years of age. (Desai *et al*., 2012) The purpose of carrying out this study is to find out the prevalence of under nutrition among children who are attending the anganwadi centres and to identify the determining factors that affect the nutritional status of the children.

Aims & Objectives

1. To study nutritional status of registered children 6 months to 6 years of age among rural children attending the anganwadi centres.
2. To find out the determinants related to nutritional status in children.

MATERIALS AND METHODS

Study design: Cross sectional study

Study area: The study was done in the Anganwadi centres of block Parikshitgarh of Meerut District in which our RHTC is situated.

Study population: All the children between the ages of 6 months to 6 years registered in Anganwadi centres of block Qila Parikshitgarh of District Meerut (UP)

Sample size: As prevalence of malnutrition in under 6 yrs of age is taken 46% (Yadav *et al*., 2016) with an absolute allowable error of 5% then sample size comes to 397.

Ethical approval was taken from the ethical committee of Subharti Medical College, Anganwadi worker and the parents of the participants.

Sampling technique: Simple random sampling

Methodology: Out of 75 villages of block Parikshitgarh, 5 villages were randomly selected by using random number table. Then a list of Anganwadi centers was taken from the CDPO office. Out of 17 Anganwadi centres of selected villages, 16 Anganwadi centers were included in the study. All the children registered in anganwadi centers between the ages of 6 months to 6 yrs whose parents gave written consent were included in the study. Anthropometric measurement were taken of the participants using Seca 354 weighing scale, Secastadiometer, Seca measuring tape & Infantometer. A pretested, structured and coded questionnaire was used while conducting the interview to record the information given by the participant's informant. Data was entered on the same day of the data collection using SPSS 19.0 version and a master chart was prepared. Analysis was done using SPSS 19.0 version and appropriate tests were applied.

RESULTS

- Only 29.4% of the registered children were regularly attending the Anganwadi centres. Significant correlation was found in underweight participants with stunting and wasting.
- Male participants 51.9% were slightly higher as compared to female 48.1% & 52.6% participants were Hindus. 33.8% of the study participants had father's education of class 8 to 10th level followed by 26.4% of class 1 to 5th while 35.5% of the mothers were illiterate followed by 33.5% of class 1 to 5th. Unskilled worker 48.6% was the common occupation of father followed by clerical/shop-owner/farmer 23.2% while 82.9% of female were unemployed.

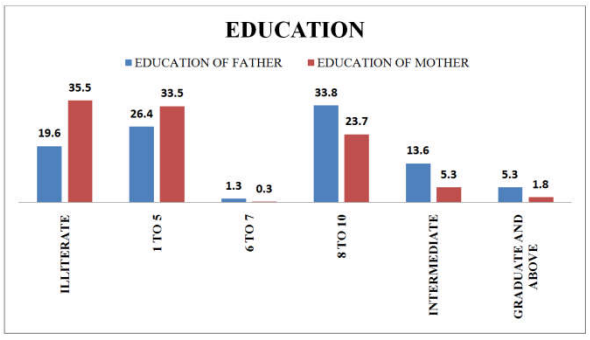

Figure 1. Distribution of education of father and mother of the participants

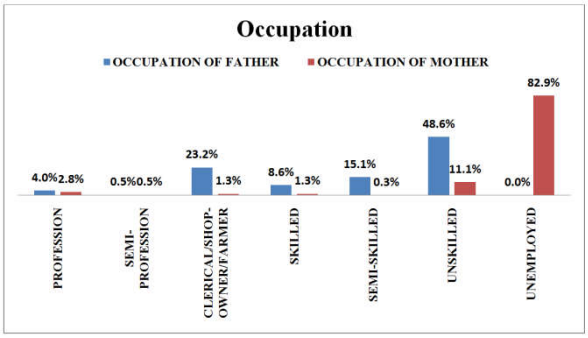

Figure 2. Distribution of occupation of father and mother of the participants

- CHC was the place of delivery for 60.7% of the participants while in 38.0% it was in private hospital. 38% of the children had 2nd birth order followed by 1st birth order in 31.2%. 100% of children were completely immunized up to the age. Only 12.6% of children had exclusive breast feeding. 42.1% of the children were breastfed for 19 to 24 months followed by 7 to 12 months in 27.2%. 6 months was the most common age of complimentary feeding (94.2%).

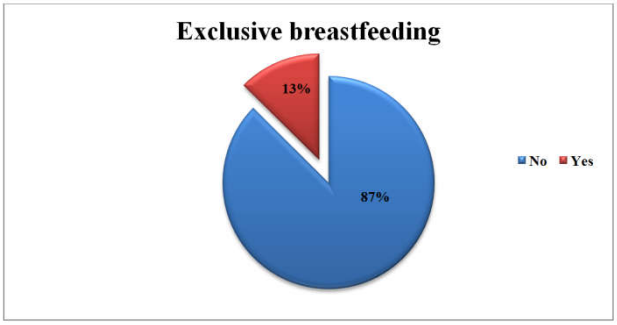

Figure 3. Distribution of exclusive breastfeeding among the participants

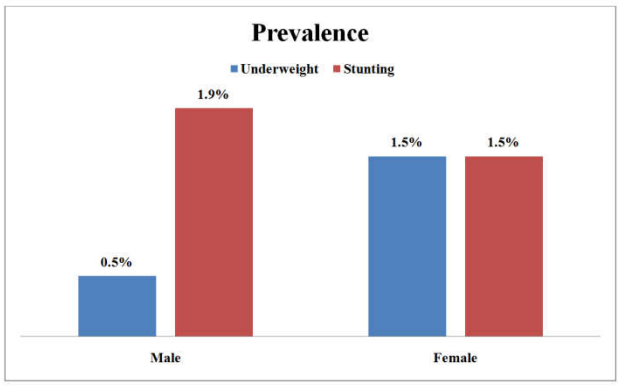

Figure 4. Distribution of prevalence of underweight, stunting & MUAC among participants

Table 1. Distribution of underweight among participants (WHO child growth standards 2006)

Normal	393 (99.0%)
Mild to moderate underweight	3 (0.7%)
Severe underweight	1 (0.3%)
Total	397 (100%)

The above table describes that out of 397 participants, 3 (0.7%) were mildly underweight followed by 1 (0.3%) of moderately underweight child while 393 (99.0%) were normal.

Table 2. Distribution of stunting among participants (WHO child growth standards 2006)

Normal	390 (98.2%)
Mild to moderate stunting	6 (1.5%)
Severe stunting	1 (0.3%)
Total	397 (100%)

The above table describes that out of 397 participants, 390 (98.2%) were normal, 6 (1.5%) were mild to moderately stunted and 1 (0.3%) severely stunted.

Table 3. Distribution of prevalence of underweight, stunting among study population

Prevalence	Male	Female	Total
Underweight	0.5%	1.5%	1.0%
Stunting	1.9%	1.5%	1.8%

The above table describes that out of 397 participants, prevalence of Underweight was 1.0% (0.5% of male and 1.5% female) and prevalence of Stunting was 1.8% (1.9% of male and 1.5% female).

- In this study, the prevalence of underweight was higher among the participants of joint family (2.3%) and in children who started complementary feeding at the age of 6 months while the prevalence of stunting was higher in children who started complementary feeding at 5 months of age (5.6%).
- Prevalence of stunting was significantly higher among the children who were not exclusively breastfed.

DISCUSSION

In the present study 206 (51.9%) of the participants were male and 191 (48.1%) were female and in the study conducted by Yadav *et al*. (2016), 54.7% were male children while 45.3% were female and the findings were similar. (Yadav *et al*., 2016) In this study, 209 (52.6%) children were Hindus while 188 (47.4%) were Muslims. In the study conducted by Bisai *et al*. (2010), 451 (50.17%) were Hindus and 195 (21.69%) were Muslims. (Bisai *et al*., 2010) In the present study, 134 (33.8%) participant's fathers had education of high school, followed by primary school 105 (26.4%), illiterate 78 (19.6), intermediate 54 (13.6%), graduate & above 21 (5.3%) and middle school 5 (1.3%) while 141 (35.5%) of participant's mothers were illiterate, 133 (33.5%) passed their primary school, followed by high school 94 (23.7%), intermediate 21 (5.3%), graduate & above 7 (1.8%) and middle school 1 (0.3%). Yadav *et al*. (2016) conducted a study in which 30.0% of the participants' fathers were graduate & post graduate, 20.2% completed their middle school while 14.0% passed their high school and 24.4% of participants' mothers passed their middle school, 16.9% passed their primary school, 16% passed high school while 16% were illiterate. (Yadav *et al*., 2016) Almost half of the participant's fathers were unskilled workers 193 (48.6%), followed by clerical/shop-owner/farmer 92 (23.2%), semi-skilled worker 60 (15.1%), skilled worker 34 (8.6%), professional 16 (4.0%) and semi-professional 2 (0.5%). 329 (82.9%) participants mothers were homemakers, 44 (11.1%) were unskilled workers, 11 (2.8%) professional, 1.3% each were clerical/shop-owner/farmer and skilled worker, 2 (0.5%) were semi-professional and 1 (0.3%) were semi-skilled worker. In the study conducted by Sharma *et al*. (2015) in Rajasthan 73.2% of participants fathers were unskilled worker and 26.8% were skilled workers while 79.2% of participants' mothers were not working and 20.8% were working. (Sharma *et al*., 2015) In current study, 100% of the participant's had complete immunization status. Only 50 (12.6%) of the study subjects received exclusive breastfeeding and 167 (42.1%) of the study subjects continued breastfeeding for 19-24 months. The most common age of complimentary feeding was 6 months 374 (94.2%). These findings were similar to the study conducted by Ashwini *et al*. (2014), where 15.26% children in rural area received exclusive breastfeedingand in the study conducted by Nithin *et al*. (2012) 38.8% participants continued breast feeding up to a period of one year. (Kumar *et al*., 2012) In the present study, significant correlation was found in underweight participants with stunting and wasting. In the study carried out by Saaka *et al*. (2016), wasting is associated with stunting but the relationship is moderated by age of the child. (Saaka and Galaa, 2016) In this study, 1 (0.3%) child was severely underweight, 3 (0.7%) children were mild to moderately underweight while 393 (99.0%) children were normal and 1 (0.3%) child was severely stunted, 6 (1.5%) children were mild to moderately stunted while 390 (98.2%) children were normal. Chudasama *et al*. conducted a study in 2015, in which 18.5% moderately malnourished and 1.5% severely malnourished children were reported. (Chudasama *et al*., 2015)

In this study, the prevalence of Underweight and Stunting was found to be 1.0% and 1.8%. AbolfazlMahyar (2010) carried out a study in which similar findings were observed (11.7% & 11.5% respectively). (Mahyar *et al*., 2010) In the study conducted by Alim *et al*., (2012), in which the prevalence of underweight and stunting was 13.7% and 27.0%. (Alim and Jahan, 2012) As it is observed that only 29.4% of the registered children were regularly attending the anganwadi centers, so the difference in the prevalence of underweight and stunting was observed in present and other studies.

Conclusion

- The finding of study shows that only 29.4% of children between the age group of 6 to 72 months are attending the anganwadicenters regularly and the prevalence of underweight and stunting were 1.0% & 1.8% respectively, that is very low in comparison to studies conducted in this area. So more and more children should be mobilized to get the benefits provided at anganwadicenters to prevent the malnutrition.
- It is observed that only 12.6% of the participants were exclusively breastfed. So emphasis should be made to promote exclusive breastfeeding practices by imparting several health educations and counselling sessions, to provide the importance of nutrition in early childhood and more focus has to be given on locally available, low cost, high calorie and high protein items to include in the diet of children.
- IEC activities should be more actively conducted regarding the nutritional programmes run by Central Govt. and State Govt. to make them aware about the objectives and the benefits provided under the respective nutritional programmes.
- Efforts have to be made by the anganwadi worker, anganwadi helper and ASHA to reduce the dropouts at the anganwadicenter.

Conflict of Interest: None

Source of funding: Nil

Ethical Clearance: Permission taken from ethical committee of Subharti Medical College, Meerut.

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