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Nutritional Health Status of Children in Rural Field Practice Area of Rama Medical College, Hapur District

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Abstract: ***Introduction***: India has a sizeable child population. The 2011 census in the first one in many decades which counted less absolute number of children in the 0-6 years age group compared to 2001 census count of 164 million children, there were 159 million children in 2011. ***Materials and Methods:*** A cross-sectional study was conducted in the rural field practice area of Rama Medical College situated around 10 km away from Hapur. A total of 300 under six children were approached for conducting the present study, of which 296 were interviewed and selected for the study. ***Results*:** Out of 296 children 108 (36.4%) children were exclusively breast feed. Further it was observed that majority i.e. 63.43% of the children were normal in whom exclusive breast feeding was practiced. It was observed that out of the 274 fully immunized for age children a maximum i.e. 144 (52.55%) were normal. Maximum i.e. 6 of the unimmunized children were under nutrition. Majority of the children were less than 24 months of age, number of female children were slightly higher than male children. Majority of the children were Muslims followed by Hindus and only one child was Christian. Maximum number of children belonged to class IV followed by class III socio-economic class, according to modified Kuppuswamy classification. ***Discussion*:** According to occupation of the father and nutritional status. Majority of the fathers were involved in unskilled occupation or semiskilled occupation i.e. 60.13%. Unemployed fathers had a higher proportion of under nutrition children 58.33%, followed by fathers involved in unskilled /semiskilled work 151.4%. Fathers involved in semi professional/professional occupation had maximum proportion of normal children 77.78%. ***Conclusion*:** Majority of the children belonged to nuclear type of family. The literacy percentage was slightly higher in fathers than in mothers. Majority of fathers were labourers followed by clerical work or owned a shop while most of the mothers were housewives and only few of them worked as teachers or lectures. Maximum children were delivered in hospital. Majority of them had normal birth weight. Maximum children belonged to birth order one. Faulty feeding practices were also observed in this area. Primary Immunization was 92.5% in the study area with small percentage of children not being completely immunized.
Keywords: Nutritional Status, Children, Hapur District.

INTRODUCTION

India has a sizeable child population. The 2011 census in the first one in many decades which counted less absolute number of children in the 0-6 years age group compared to 2001 census count of 164 million children, there were 159 million children in 2011. This is evident in the share of children in the population which declined from 16% in 2001 to 13.1% in 2011.

As compared to other states, UP not only has poverty, but also a significantly higher proportion of children in the population. The children the age group 0-6 years age account for 18% of the population in UP, compared with 13.1% in India, as per the 2011 census.

Early childhood (first 6 years) constitute the most crucial period of life, when the foundations are laid for cognitive, social, emotional, physical/motor development and cumulative lifelong learning. The age group of 0-6 years age not only forms a large group but they are also a vulnerable or high risk group, as 90% of growth of human brain and 50% of growth of human body occurs in this period.

In India Diarrhoeal diseases are major health problem among children under the age of 5 years. Diarrhoea is a leading cause of childhood morbidity and mortality in rural areas and urban slums. Diarrhoea kills 1 million children every year in India and produces malnutrition in children. The median diarrhoeal incident

rates in India ranges from 1.0 to 4.7 episodes per child per year. In a prospective study undertaken in rural settings of ICDS block in Rohtak District, it was observed that young children below the age of three years on an average, experienced 4 to 6 episodes of Diarrhoea per year. In a study carried out in 1985 in urban and rural areas of 11 states shows that the median Diarrhoea incidents varied from 1.5 episodes per child per year in urban areas to 4.7 episodes in rural area.

Helminthes infestation in children is also very common in rural areas. Incidences of malaria, tuberculosis are also high in rural areas and urban slums.

According to DLH5 – 3 (2007 – 08) data only 41.1% of children (12 to 23 months) are fully immunised in rural area of Utter Pradesh. In Hapur District only 32.2% of children belong to the age group 12 to 23 months are fully immunised in rural area, 43.5% of children (12 to 23 months) received measles vaccines in rural areas of Hapur District of Utter Pradesh.

Aim of study the prevalence of under-nutrition among the children under 6 years of age. Determine association of socio-demographic factors with under-nutrition. Association of nutritional status with some epidemiological factors and to suggest measures for prevention and control of under-nutrition based on finding of study.

MATERIALS AND METHODS

A cross-sectional study was conducted in the rural field practice area of Rama Medical College situated around 10 km away from Hapur urban area in Department of Paediatrics, Rama Medical College, Hapur. Pilkhuwa is town located in Hapur District, Utter Pradesh. Duration of the study was one year from December 2014 to November 2015.

A total of 300 under six children were approached for conducting the present study, of which 296 were interviewed and selected for the study.

The study participants were the children under the age of six years residing permanently in the rural field practice area and available during the period of study.

The under six children of both sexes were included in the study. The age was considered in terms of completed years. The following exclusion criteria were used for the purposes of the study:

A. Children who were seriously ill during the study period.

B. The under six children who could not be contacted in three visits.

The data collection tool used for the study was an interview schedule that was developed at the institute with the assistance from the faculty members and other experts in relation to the children's anthropometric, dietary, immunisation, morbidity and other relevant parameters used in the study.

Method of Data Collection:

A. Study was approved by Institutional Ethics Committee and informed verbal consent was obtained from all participants. The health workers informed and motivated the families to participate in the study along with the scope of future intervention, of necessary. All the caregivers of the participants were explained about the purpose of the study and were insured strict confidentiality, and then informed consent was taken from each of them before the total procedure. The participants were given the option not to participate in the study if they wanted. Data regarding family and personal characteristics were recorded by personal interview technique from the caregivers of the participants by the principal investigator himself.

B. On an average 5-6 children were examined per day.

C. General information/history was taken.

D. Clinical examination and analysis of past and present medical records was done.

RESULTS

The study was conducted to Health and Nutritional status of Children (0 – 6 years) under six year children in rural field practice area of Rama Medical College (Pilkhuwa Town). A total of 300 under six children were approached for conducting the present study, of which 296 were interviewed and selected for the study.

According to the WHO recommended classification, the prevalence of underweight (low weight for age), stunting (low height for age), and wasting (low weight for height) was 79 (26.69%), 69 (23.33%), and 28 (16.19%) respectively. Severe degrees of underweight, stunting and wasting were observed in 21.62%, 7.94% and 6.51% respectively. None of the children observed were obese or overweight in the present study.

Table 1: Age Distribution of Children According To Age Group and Nutritional Status:

Age in months	Under nutrition	Normal	Total
0 – 12	22(28.95%)	54 (71.05%)	76
13 – 24	36(47.37%)	40 (52.63%)	76
25 – 36	31(51.26%)	28 (48.74%)	59
37 – 48	27(60.67%)	18 (39.33%)	45
49 – 60	18(68.52%)	9 (31.48%)	27
61 – 72	9(69.23%)	4 (30.77%)	13
Total	143 (48.31%)	153 (51.68%)	296

Maximum children i.e. 76 each were present in 0 – 12 months and 13 – 24 months age groups. Further it was observed that maximum proportion of under nourished children were in the age group of 61 – 72 months, i.e. 9 (69.23%), followed by 18 (68.52%) in 49 – 60 months and least proportion in 0 – 12 months i.e. 22 (28.95%). This difference was statistically highly significant.

Higher numbers of girls i.e. 160 were seen in the study. It was observed that 85(52.81%) of the girls and 68(50.37%) of the boys were normal. Among the undernourished maximum number were boys i.e. 67(49.63%). No significant difference was observed between boys and girls as far as under nutrition is concerned ($p < 0.05$).

Table 2: Distribution of Children According to Socio-Economic Class and Nutritional Status:

Socio economic class	Under nutrition	Normal	Total
Class II	12 (35.82%)	22(64.18%)	34
Class III	44(51.16%)	42(48.84%)	86
Class IV	82(48.66%)	86(51.34%)	168
Class V	5(61.11%)	3(38.89%)	08
Total	143(48.31%)	153 (51.68%)	296

Majority of the children i.e. 168 (56.59%) belonged to class IV followed by 86 (29.05%) in class III and no children were found in class I, according to modified Kuppuswamy classification. Further the table reveals that proportion of under nutrition was highest i.e. 5 (61.11%) among children who belonged to class V socio-economic-status followed by class III and class IV, where as lowest i.e. 12 (35.82%) in children belonging to class II category.

In this study 151 (51.01%) belonged to nuclear type of family followed by 117 (39.36%) from Joint family and least i.e. 28 (9.63%) belonged to three generation families. Proportion of underweight was higher among children from three generation families and nuclear families i.e. 15(50.88 %) and 76(50.66 %) respectively, compared to 52(44.64 %) children from joint families.

Study notes that the maximum numbers of the mothers of study population were housewife i.e. 243 (82.09%). It was observed that children of mothers employed in semi professional/professional occupations i.e. teachers had high proportion of children being underweight i.e. 2 (66.67%) followed by mothers employed in unskilled/semiskilled mainly as labourers or domestic servants 25 (62.03%). This difference was not statistically significant.

Majority of the fathers were involved in unskilled occupation or semiskilled occupation like labourers or vendors i.e. 178 (60.13%). Unemployed fathers had a higher proportion of undernourished children 3(58.33%), followed by fathers involved in unskilled /semiskilled work 93(51.4%). Fathers involved in semi professional/ professional occupation had maximum proportion of normal children 4(77.78%). This difference among the various groups was not statistically significant.

In the present study majority i.e 122 (41.04%) of the families had a family size of two. It was observed that proportion of under nutrition was maximum i.e 21 (62.69%) when family size was 4 or more and least i.e 33(43.33%) when family size was one. This difference was not statistically significant. Study maximum i.e. 567 (90.03%) children were delivered in hospital. Proportion of under nutrition was more i.e. 16 (54.24%) in children delivered at home compared to those who delivered in hospital i.e. 127(47.65%). The difference was not statistically significant.

In this study 215 (80.91%) had normal birth weight. Maximum number of the children who had birth weight < 2.5 kgs were undernourished i.e. 34(60.18%). This difference was statistically significant.

Table 3: Distribution of Children According to Birth order and Nutritional Status

Birth order	Under nutrition	Normal	Total
1	65(49.43%)	66(50.57%)	131
2	43(43.17%)	58(56.93%)	101
3	25(55.68%)	19(44.32%)	44
$\geq$ 4	11(51.22%)	9(48.78%)	20
Total	144 (48.31%)	152 (51.68%)	296

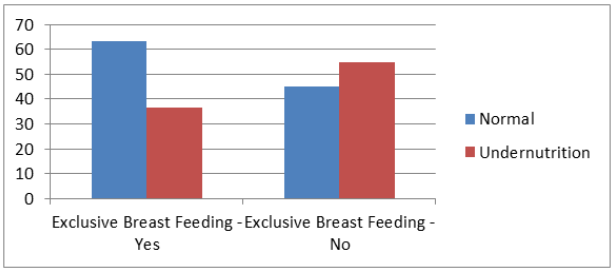
It was observed that the proportion of under nutrition was least in children with birth order two, i.e. 43(43.17%) and was found to be high in children with birth order three i.e. 25(55.68%). Though this difference was not statistically significant.

Table 4: Distribution of Children According to Birth Spacing and Nutritional Status

Birth spacing	Under nutrition	Normal	Total
< 3 years	52(50.74%)	50 (49.26%)	102
$\geq$ 3 years	30(43.57%)	40(56.43%)	70
Total	82	90	172*

In the present study maximum proportion of under nutrition i.e. 52(50.74%) was seen in children in whom birth spacing was less than 3 years compared to 30 (43.57%) in whom birth spacing was 3 or > 3 years. This difference was not statistically significant.

In the present study 181(60.97%) children had been feed with prelacteal feeds. proportion of under nutrition was higher among children who had received prelacteal feeds 100 (55.40 %). This difference was statistically highly significant.



Graph 1: Distribution of Under Six Children According to Exclusive Breast Feeding Practice and Nutritional Status

Graph shows Out of 296 children 108 (36.4%) children were exclusively breast feed. Further it was observed that majority i.e. 69 (63.43%) of the children were normal in whom exclusive breast feeding was practiced. Among the children in whom exclusive breast feeding was not practiced 104 (55.05%) were under nutrition. This difference was statistically highly significant.

It was observed that out of the 274 fully immunized for age children a maximum i.e. 144 (52.55%) were normal. Maximum i.e. 6 (73.33 %) of the unimmunized children were under nutrition. This difference was not statistically significant.

Table 5: Distribution of Children According to Clinical Signs of under nutrition (N=296)

Clinical sign		Percent
General appearance	Thin	11.99%
Hair	Lack of lusture	3.37%
	Dyspigmented	0.17%
	Thin and sparse	2.36%
Face	Diffuse depigmentation	6.75%
	Moon face	0.17%
Eyes	Brown pigmentation	0.17%
	Pale conjunctiva	19.93%
Tongue	Pale and flabby	16.38%
	Geographic	0.84%
Teeth	Mottled enamel	0.17%
	Caries	14.02%
Skin	Dry and scaly	10.13%
	Follicular hyperkeratosis	0.17%

Study among the different clinical features of under nutrition maximum number of children i.e. 59 (19.93%) had pale conjunctiva, 42 (14.02%) had caries, 35 (11.99%) had a thin general appearance and 30 (10.13%) had dry and scaly skin.

DISCUSSION

All the children under the age of six years, residing permanently in the rural field practice area (Pilkhuwa Town) and available during the period of the study were assessed regarding their socio-economic background, nutritional status, feeding practices, immunisation status, morbidity and other factors affecting the malnutrition. It was assessed by the following method:

In the depth interview of the participants. Clinical examination. Analysis of past & present medical record. The present study shows prevalence of under nutrition in under age six years children. In the present study prevalence of under nutrition was 48.31%. This findings were more or less similar with Sabale Rupali *et al*., (2012) [1] 51.8%, Gholamreza Sharifzadeh *et al*., (2010) [2] 47.3%, S Bisai K *et al*., (2008) [3] 50.00%, Jakhar *et al*., (2011) [4] 58.3 %, M. K. Goel *et al*., (2007) [5] 57.4%.

Few studies showed a higher prevalence then the present study namely RN Mishra *et al*., (2001) [6] 75%, Munesh Kumar Sharma *et al*., (2011) [7] 72.5%, Shally Awasthi *et al*., (2003) [8] 67.3%, Srivastava Anurag *et al*., (2012) [9] 66.3%, and SP Mitra (2007) [10] 61.1%. According to Paramita Sengupta *et al*., (2010) [11] 29.5%, Mittal A *et al*., (2007) [12] 38.38% were undernourished. Distribution of age under six years children according to socio economic status and nutritional status. The proportion of undernutrition was highest i.e. 6 (61.11%) among children who belonged to class V socio-economic-status, where as lowest i.e. 12 (35.82%) in children belonging to Class II category. These findings are in confirmation with Munesh Kumar Sharma *et al*., (2011) [7]. According to type of family and nutritional status. It was observed that 151 (51.01%) belonged to nuclear type of family followed by 116 (39.36%) from joint family and least i.e. 29 (9.63%) belonged to three generation. Proportion of under nutrition was higher among children from three generation families and nuclear families i.e. 15(50.88 %) and 77 (50.66 %) respectively compared to 52(44.64 %) children from joint families. These findings are in confirmation with Srivastava Anurag, *et al*., (2012) [9], Mukhopadhyay DK *et al*., (2009) [13]. A cross-sectional study study done by M. K. Goel *et al*., (2007) [5] in slum area of Rothak city on 530 children, aged between 1-6 years, revealed that undernourishment was influenced by type of family. Kumkum Kumara *et al*., (2007) [14] revealed that there was no significant difference between type of family and undernutrition ($p>0.05$). Distribution of age under six years children according to employment status of the mother and nutritional status. In the present study maximum numbers of the mothers of study population were housewife i.e. 243 (82.09%). It was observed that

children of mothers employed in semi professional/ professional occupation had high proportion of being under nutrition i.e. 2 (66.67%) followed by mothers employed in un skilled /semiskilled 25 (62.03%). This difference was not statistically significant.

These findings are in confirmation with Gholamreza Sharifzadeh *et al*., (2010) [15], Nguyen Ngoc Hien *et al*., (2008) [16] and Nakahara S *et al*., (2006) [17].

According to occupation of the father and nutritional status. Majority of the fathers were involved in unskilled occupation or semiskilled occupation i.e. 178 (60.13%). Unemployed fathers had a higher proportion of under nutrition children 3(58.33%), followed by fathers involved in unskilled /semiskilled work 91 (51.4%). Fathers involved in semi professional/professional occupation had maximum proportion of normal children 4 (77.78%). This difference among the various groups was not statistically significant.

Paramita Sengupta *et al*., (2010) [11] and Swami HM *et al*., (2000) [18] found statistically significant association of being under-nourished and having unskilled labourer father. According to prelacteal feeding and nutritional status. In the present study 181 (60.97%) children had been feed with prelacteal feeds. Proportion of under nutrition was higher among children who had received prelacteal feeds 100 (55.40%). This difference was statistically significant. These findings were in confirmation with Roy S *et al*., (2009) [19]. According to exclusive breast feeding practice and nutritional status. Out of 296 children majority i.e. 69 (63.43%) of the children were normal in whom exclusive breast feeding was practiced. Among the children in whom exclusive breast feeding was not practiced 104 (55.05%) were under nutrition. This difference was statistically significant.

These findings were in confirmation with Paramita Sengupta *et al*., (2010) [11], Nguyen Ngoc Hien *et al*., (2008) [20], Chakraborty S *et al*., (2006) [21], Panpanich R *et al*., (2003) [22] and Surya Pathi *et al*., (2003) [23]. A study done in 2009 by Prema Ramachandran *et al*., [24] states that less than 50 per cent of infants were exclusively breastfed up to six months.

CONCLUSION

This cross-sectional, community based epidemiological study was conducted in the rural field practice area of Rama Medical College (Pilkhuwa Town) from November 2014 to December 2015. This study was conducted among under six population aged 0-72 months. Various factors like socio-demography, general health profile, immunization status, feeding practices and anthropometry measurement according to new WHO growth standard (2006) were assessed.

In the present study, majority of the children were less than 24 months of age, number of female children were slightly higher than male children. Majority of the children were Muslims followed by Hindus and only one child was Christian. Maximum number of children belonged to class IV followed by class III socio-economic class, according to modified Kuppuswamy classification. Majority of the children belonged to nuclear type of family. The literacy percentage was slightly higher in fathers than in mothers. Majority of fathers were labourers followed by clerical work or owned a shop while most of the mothers were housewives and only few of them worked as teachers or lectures. Maximum children were delivered in hospital. Majority of them had normal birth weight. Maximum children belonged to birth order one. Faulty feeding practices were also observed in this area. Primary Immunization was 92.5% in the study area with small percentage of children not being completely immunized. It was observed that 48.2% of the children were undernourished. Parents literacy, socio-economic status and family size had an impact on better nutritional status of children. Faulty feeding practices, partial immunization, h/o frequent diarrhoea and other infections in the past one year, etc, where some of the epidemiological determinants for undernourishment. Pale conjunctiva carries thin general appearance and dry and scaly skin was most commonly present clinical features of under-nutrition.

Confect of interest: None

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