

Cross Section Study of Malnutrition in Children of 1-10 Years Age Group in Urban Slums of Aligarh

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Abstract

Nutrition plays important role in development of growth and development of child. In many developing countries poor nutritional status is mainly due to illiteracy, poverty, least job opportunities etc. Poor hygiene, intestinal infection, worm infestation are another important groups leading malnutrition in India. Cross sectional study was conducted in Bhojpuri slum which is densely Muslim populated slum of Aligarh City, Uttar Pradesh on 300 children. Objective of the study was to assess the nutritional status of children below ten years of age. Measurement of height and weight was done by weighing machine and measuring scale removing shoes with minimal clothing. To measure the stunting of children enrolled in this study, height of the children measured during study was compared with expected height for age. The magnitude of stunting was decided on the basis of Water low classification and was statically analyzed using chi square test. Our study also revealed that incidence of grade III malnutrition in 7-10 year age group was highest (27.7

Index terms— malnutrition, stunning, children.

1 Introduction

utrition is one of the most essential things of life and plays a crucial role in body growth, development and maintenance of health. Without adequate nutrition it is not possible to maintain health and protection of the body from ailments. Nutrition provides energy to the body which utilizes it to perform hundreds of biological and physical activities.

Though nutrition (food) is the basic need of life for human being, thousands of people are not able to get balanced or minimum food required for life across the world due to many reasons. Situation of food crisis is more serious in war torn countries like Sudan, Somalia, Rwanda, Uganda, Afghanistan, Iraq and Sri Lanka.

In many developing countries like India, Pakistan, Bangladesh, Nepal, poor nutritional status is mainly due to illiteracy, poverty, least job opportunities etc. Corruption at political and bureaucratic level is another leading cause of malnutrition in India and other Asian countries. Poor hygiene, intestinal infection, worm infestation are another important groups leading malnutrition in India.

In their several studies, National Nutritional Monitoring Bureau (India) found that prevalence of under nutrition is declining from 18-20.8% (1969-75) to <8.5% for the year 1976 onwards. This may partially be attributed to adaptation of lower standards of normal adopted after 1975 1 .

Prevalence of under nutrition across the world varies from country to country. In developing countries, war torn countries and countries with political unrest and ethnic conflicts, its prevalence is high enough. In Sudan various studies have disclosed some alarming truth. Francesco Grandesso (2005) reported that in South Darfur (Sudan) 24% children younger than 5 years were acutely malnourished 2 .

Michael J. (1988) reported that, in eastern Sudan (Tigrayan) prevalence of undernutrition among children <5 years of age was 14-50 % 3 . Not only in developing countries, under nutrition in various developed countries is also prevalent. In China and Malaysia 10% and 12% children less than 5 years of age were undernourished respectively.

4 RESULTS AND DISCUSSIONS

44 In Cambodia, Micronesia, Philippines, Vietnam and Papua New Guinea prevalence of under nutrition among
45 children under 5 years of age were (45.3%), (48%), (30.6%), (30%) and (45%) respectively. In India several
46 studies have been done in various states to assess the nutritional status of children aged 0-12 years. L. Jeyaseelan
47 & M. Lakshman (1997) reported that 8.2% children aged 5-7 years living in urban and rural areas of south India
48 were severally undernourished 4 .

49 In 2005, F.A.O. reported 46.7 % wasting and 44.9% stunting in children of < 5 years age. [17] Saiman Khalil
50 and Zulfia Khan (2004) reported that the prevalence of wasting of boys and girls were 32.76% and 28.12%
51 respectively and stunting was observed as 79.73% of boys and 81.8% of girls 4 . It was reported that out of
52 1,10,00 persons 38% male and 30% female showed vitamin-A deficiency in Bihar 5 . As

2 Material and Methods

54 Cross sectional study was conducted in Bhujpura slum which is densely Muslim populated slum of Aligarh City,
55 Uttar Pradesh. In this study 300 children (1-10 years) were selected randomly from the slum area. General
56 information like name of the child, father's name, age, sex, religion and monthly income of their parents were
57 recorded. Measurement of height and weight was done by weighing machine and measuring scale removing shoes
58 with minimal clothing.. During measurement of weight and height norms of anthropometry were followed. The
59 grading of malnutrition was done as per the recommendation of the nutrition subcommittee of pediatrics 6 .

60 To measure the stunting of children enrolled in this study, height of the children measured during study
61 was compared with expected height for age. The magnitude of stunting was decided on the basis of Water
62 low classification 7 .Children were also studied for different nutrition related symptoms, signs and ailments
63 like Angular Stomatitis, Cheilitis, Diarrhea, Dermatitis, Night blindness, Pallor, edema and Respiratory tract
64 infections. For statistical analysis, student t-test and Chisquare Test were applied.

3 III.

4 Results and Discussions

67 Present study was carried out in Bhojpura Slum of Aligarh City in 2006 by the department of Dietetics and
68 Hospital Food Services, Food Craft Institute, University polytechnics, Aligarh Muslim University, Aligarh. Three
69 hundred children of 1-10 year of age were enrolled in this study. Out of 300 children 195 (65%) were male and
70 105 (35%) were female and 285 (95%) were Muslim and 15 (5%) were Hindu .It revealed that Bhojpura Slum
71 is a Muslim dominated Slum area of Aligarh. Children were divided in four age groups and it was found that
72 maximum number of children was from 7-10 year age group while least number of children was from 3-5 year age
73 group.

74 The overall occurrence of malnutrition in children of 1-10 years of age was found to be 68%. However it was
75 found to be significantly higher (72.5 %) in the age group of 1-3 years and lower (62.1%) in the age group of 5-7
76 years. This age group (1-3 year) also exhibited significantly higher prevalence of grade I, and IV malnutrition .And
77 prevalence of malnutrition was highest in age group of 7-10 in II and III grades only. Present data also revealed
78 that prevalence of malnutrition in under five children was highest in 1-3 year age group (table-1). Chakraborty
79 et al ?? (2006) also reported higher prevalence of Protein Energy Malnutrition in the age group of 1-3 years while
80 Saxena et al. ??4 (1997) reported a higher prevalence of malnutrition in the age group of 0-1 year. It was found
81 that males had an overall higher prevalence (69.7%) of malnutrition than females (64.8%) in our study. Saxena
82 et al.(1976) 9 and Srivastava (1985) 10 also reported similar results as overall higher prevalence of malnutrition
83 in males in comparison to females. While Chakraborty et al.(2006) 8 reported contradictory results as overall
84 higher percentage of malnutrition among females (70.6%) than in males (62.6%). However grade II and grade IV
85 malnutrition was found to be higher in males (19.5% and 9.7 %) than in females (12.4% and 3.8% respectively)
86 in our study. And prevalence of malnutrition was higher in females with grade I and grade III (28.5% and 20%
87 respectively) than males (22.6% and 17.9 % respectively (see table-1).

88 The children were also analyzed for their height for expected age. It was found that 52 (17%) children [63.4%
89 male and 36.5% female] were healthy while 248 (83%) children were stunted. Out of 248 stunted children,
90 162(65%) were male and 86 (34.7%) were female. Out of 195 male and 95 female children enrolled in this study
91 162 (83%) male and 86 (82%) female were stunted. It indicated that prevalence of stunting in male and female
92 was almost equal. Age wise stunting of children was also observed and it was found that the onset of stunting
93 was highest (87.5%) among the children of 3-5 year age group and lowest (79%) among the children of 1-3 year
94 age group.

95 Magnitude of stunting was also studied and it was found that highest level of marginal stunting (19%) was
96 prevalent in 7-10 year age group and lowest level of marginal stunting (6%) in 1-3 year age .Medium stunting was
97 highly prevalent (33%) in children of 3-5 year age group and lowest (24%) among 7-10 year age group Similarly,
98 severe stunting was highly (48%) prevalent in 3-5 year age group and lowest (38%) was observed in 7-10 year
99 age group.It was also found that marginal (15%) and severe (46%) stunting were more prevalent in females in
100 comparison to males (13% and 41.5% respectively), while medium stunting was more prevalent in males (29.7%)
101 that females (25.7%). (Table ?? 13 which was comparable with our study.

102 IV.

103 5 Conclusion

104 Our study concluded that prevalence of grades I, II and IV malnutrition (wasting) was highest in children of the
105 age group 1-3 year. Male children had a higher incidence of grade II and grade IV, and Female children had a
106 higher prevalence of grade I and grade III malnutrition (wasting). Our study also revealed that incidence of grade
107 III malnutrition in 7-10 year age group was highest (27.7%). This might be due to work load and psychological
108 stress because most of the children (male and female) of this age group were working in lock factories, on Dhaba
109 and Restaurants. Our results were similar to other studies who stated that prevalence of malnutrition (wasting)
110 was highest in the age group of 1-3 year [8][9][10][11] .

111 Present study also concluded that prevalence of stunting among the children of Bhujpura Slum was more
112 prevalent than wasting. It was found that out of 300 children 248 (83%) were stunted and male female proportion
113 was 162 (65%) and 86 (34.7%) respectively. Prevalence of stunting in male (83%) and female (82%) was almost
114 equal with a nominal superiority of 1% in male children. Stunting was highly prevalent (87.5%) in 3-5 year
115 age group and it was lowest (79%) in 1-3 year age group. It was also found that highest incidence of marginal
116 stunting (19%) was observed in 7-10 year age group while highest medium (33%) and severe (48%) stunting was
117 observed in 3-5 year age group. Marginal stunting (15%) and severe stunting (46%) were highly prevalent in
118 female children. And medium stunting (29.7%) was prominent in male children.

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Figure 1:

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Prevalence of different malnutrition related diseases and symptoms & signs among the children enrolled in this study was also studied and it was found that Angular Stomatitis which is caused by vitamin B2 and/ or pyridoxine deficiency was present in 63 (21%) [35 male and 28 female] children. Cheilitis caused by vitamin B2 and/ or pyridoxine deficiency was present in 60 (20%) [34 male and 26 female] children. Diarrhea and Dermatitis caused by Nicotinic acid deficiency were present in 78 (26%) [47 male and 31 female] and 45 (15%) [29 male and 16 female] children respectively. Night blindness caused by vitamin A deficiency was present only in 25 (8.3%) [16 male and 9 female] children. Similarly Pallor mainly caused by Iron deficiency mainly was present in 95 (32%) [59 male and 36 female] children, while Edema caused by severe

Figure 2:

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Year

Figure 3: Table 1 :

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Age group (Years)	Total Chil- dren	Normal	Marginal	Medium	Severe	Total
Age wise						
1-3	62 (20.7%)	13 (21%)	04 (6%)	17 (27%)	28 (45%)	49 (79%)
3-5	48(16%)	06 (13%)	03 (6%)	16 (33%)	23 (48%)	42(88%)
5-7	82(27.3%)	13 (16%)	11 (13%)	26 (32%)	32 (39%)	69 (84%)
7-10	108 (36%)	20(18.5%)	21(19%)	26 (24%)	41(38%)	88 (82%)
Sexwise						
Male	195 (65%)		23 (12%)		81 (41.5%)	162 (83%)
Female	105 (35%)	33 (17%)	16 (15%)	58(30%)	43 (46%)	86 (82%)
		19 (18%)		27 (25.7%)		
Total	300	52 (17%)	39 (13%)	85 (28.3%)	124 (41%)	248 (83%)

Figure 4: Table 2 :

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