Original Article

A study of prevalence and factor associated with protein energy malnutrition in less than six year children at tertiary health centre

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Abstract

Introduction: Under-nutrition is one of the most common causes of morbidity and mortality among children throughout the world, more so in developing nations. **Aims and Objectives:** To Study Prevalence and Factor Associated with Protein Energy Malnutrion in Less than Six year Children at Tertiary health Centre. **Methodology:** This was a cross-sectional study carried out in the Pediatric department of a tertiary health care Centre during one year period from June 2014 to July 2015. All the Pediatric Patients were screened for nutritional status by WHO's criteria to classify under six children into underweight The statistical analysis done by Chi-Square test. **Result:** Proportion of undernutrition was maximum in13-24 i.e. 70.21% month's age followed by 25-36 i.e. 68.25; 37-48-69.00%; 49-60-55.26%; and minimum in 61-72-42.11%. Chi-square test was applied to test the difference in age groups of under six children and nutritional status which was highly significant ($p<0.0001$)proportion of girls suffered from under nutrition was more i.e. 61.87% than boys i.e. 56.96%. No significant difference was observed between boys and girls so far as under nutrition is concerned ($p>0.05$). Majority of the Factors associated with Underweight in Children were i.e. 59.85% of Lower Socio Economic Status, 55.19% were having In-adequate Immunization ;51.97% were having Frequent diarrheal infections in past one year; 49.46% were having Frequent ARI infections in past one year; 48.38% were having Delayed Colostrum Feeding ;45.87% were have Not –Exclusive Breast feeding ;44.80% were having Late Weaning ; 44.08% were having Pre Lacteal feeding ; 43.72% were having Inadequate Consumptions of IFA Tablets during ANC by mothers ;42.65% were having Low birth weight ;41.21% were delivered at Home. **Conclusion:** Overall prevalence found in our study was 58.61% and the risk factors most commonly associated with Underweight children were Lower Socio Economic Status; In-adequate Immunization; Frequent diarrheal infections in past one year; Frequent ARI infections in past one year; Not –Exclusive Breast feeding; Late Weaning ;Pre Lacteal feeding ;Inadequate Consumptions of IFA Tablets during ANC by mothers; Low birth weight ; deliveries at Home

Keywords: Protein Energy Malnutrion, Undernutrition, In-adequate Immunization, Diarrheal infections, ARI (Acute Respiratory infections), IFA(Iron Folic Acid Tablets) ANC (Antenatal Care).

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INTRODUCTION

Under-nutrition is one of the most common causes of morbidity and mortality among children throughout the world, more so in developing nations.[1] Being a major burden of ill health, it has been accountable for 60% of the 10.9 million deaths that occur annually among children under five years of age.[2] Data from UNICEF states that the highest level of underweight children is found in South Asia, involving 46% of all under-fives in the region.[3] Under-nutrition continues to be a public health problem in India. With a prevalence of 43.5% in children under five years, it is observed to be amongst the highest in the world.[4] In this age group 46% of children are reported stunted, 47% underweight and 16% wasted.[5]

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There is also a wide disparity in the prevalence of under-nutrition amidst the states of India, ranging from high (55%) to relatively lower (27%).[5]

MATERIAL AND METHODS

This was a cross-sectional study carried out in the Pediatric department of a tertiary health care Centre during one year period from June 2014 to July 2015. All the Pediatric Patients were screened for nutritional status by WHO's criteria to classify under six children into underweight (<-2SD of median weight for age) and Normal (≥-2SD of median weight for age). Underweight children further classified into mild underweight (≥ -3 SD to < -2 SD of median weight for age) andsevere underweight (< -3SD of median weight for age). During One Year total 476 children were screened by WHO growth charts out of that 279 found undernourished. All the Socio-Demographic and Clinical History was recorded. The Various risk factors present in Undernourished children were also recorded. The statistical analysis done by Chi-Square test.

RESULT

Table 1: Distribution of under six children according to age Group and nutritional status

Age (months)	Undernutrition	Normal	Total
0-12	17(25.37)	50(74.63)	67(100)
13-24	66(70.21)	28(29.79)	94(100)
25-36	86(68.25)	40(31.75)	126(100)
37-48	52(69.00)	23(31.00)	75(100)
49-60	42(55.26)	34(44.74)	76(100)
61-72	16(42.11)	22(57.89)	38(100)
Total	**279(58.61)**	**197(41.39)**	**476(100)**

χ_5^2 = 48.73, p<0.0001, (Figures in parenthesis indicate horizontal percentages)

Table 1.Shows age wise distribution of under six children according to nutritional status. It is clear from the table that proportion of undernutrition was maximum in13-24 i.e. 70.21% month's age followed by 25-36 i.e. 68.25; 37-48-69.00%; 49-60-55.26%; and minimum in 61-72-42.11%. Chi-square test was applied to test the difference in age groups of under six children and nutritional status which was highly significant (p<0.0001).

Table 2: Sex -wise distribution of under six children according to nutritional status

Sex	Under nutrition	Normal	Total
Male	180(56.96)	136(43.04)	316 (100)
Female	99(61.87)	61(38.13)	160 (100)
Total	**279 (58.61)**	**197 (41.39)**	**476 (100)**

χ^2= 0.71, p>0.05, (Figures in parenthesis indicate horizontal percentages)

Table 2. Shows the distribution of under six children according to sex and nutritional status. Out of 476 children in this study maximum i.e. 316 were boys and 160 were girls. It is evident from the table that proportion of girls suffered from under nutrition was more i.e. 61.87% than boys i.e. 56.96%. No significant difference was observed between boys and girls so far as under nutrition is concerned (p>0.05).

Table 3: Factors associated with underweight in children

Associated Factor	No. (n=279)	Percentage
Lower SES	167	59.85%
In-adequate Immunization	154	55.19%
Frequent diarrheal infections in past one year	145	51.97%
Frequent ARI infections in past one year	138	49.46%
Delayed Colostrum Feeding	135	48.38%
Not –Exclusive Breast feeding	128	45.87%
Late Weaning	125	44.80%
Pre Lacteal feeding	123	44.08%
Inadequate Consumptions of IFA Tablets during ANC by mothers	122	43.72%
Low birth weight	119	42.65%
Home delivery	115	41.21%

Table 3: Majority of the Factors associated with Underweight in Children were i.e. 59.85% of Lower Socio Economic Status, 55.19% were having In-adequate Immunization ;51.97% were having Frequent diarrheal infections in past one year; 49.46% were having Frequent ARI infections in past one year; 48.38% were having Delayed Colostrum Feeding ;45.87% were have Not – Exclusive Breast feeding ;44.80% were having Late Weaning; 44.08% were having Pre Lacteal feeding ; 43.72% were having Inadequate Consumptions of IFA Tablets during ANC by mothers ;42.65% were having Low birth weight ;41.21% were delivered at Home.

DISCUSSION

PEM is identified as major health and nutrition problem in India. It occurs particularly in weakling and children in the first year of life. It is not only an important cause of childhood morbidity and mortality but also leads to permanent impairment of physical and possibly of mental growth of those who survive[6]. Death in children constitutes more than 34% of total death in India[7]. Seven out of ten of these deaths are due to respiratory infection, diarrhea and malnutrition. There is high under five morbidity and mortality in India[7]. Children are considered to be backbone of any nation. India is considered home to the largest number of underweight and stunted children in world. Nutritional problems among children cause major morbidity and mortality in India[8]. Nearly one fourth of children under 5 years of age, worldwide suffer from undernutrition. Undernutrition is a global health problem

and more so in developing countries[9]. In our study we have found that that proportion of undernutrition was maximum in13-24 i.e. 70.21% month's age followed by 25-36 i.e. 68.25; 37-48-69.00%; 49-60-55.26%; and minimum in 61-72-42.11%. Chi-square test was applied to test the difference in age groups of under six children and nutritional status which was highly significant ($p<0.0001$) These findings are in confirmation with Jaya seelan *et al* (1997)[10], Manish Kumar Goal *et al* (2007)[11], HS Joshi *et al* (2011)[12] It is evident from the table that proportion of girls suffered from undernutrition was more i.e. 61.87% than boys i.e. 56.96%. Observed difference in sex of children and nutritional status was not significant ($p>0.05$) These findings are in confirmation with Ray SK *et al* (2001)[24], Arshad Farookh *et al* (2002)[14], SO Ayaya *et al* (2004)[15], Madhu B Singh *et al* (2006)[16], HS Joshi *et al* (2011)[12] Majority of the Factors associated with Underweight in Children were i.e. 59.85% of Lower Socio Economic Status, 55.19% were having In-adequate Immunization ;51.97% were having Frequent diarrheal infections in past one year; 49.46% were having Frequent ARI infections in past one year; 48.38% were having Delayed Colostrum Feeding ;45.87% were have Not –Exclusive Breast feeding ;44.80% were having Late Weaning ; 44.08% were having Pre Lacteal feeding ; 43.72% were having Inadequate Consumptions of IFA Tablets during ANC by mothers ;42.65% were having Low birth weight ;41.21% were delivered at Home. This is confirmatory with A Basit[17].

CONCLUSION

Overall prevalence found in our study was 58.61% and the risk factors most commonly associated with Underweight children were Lower Socio Economic Status; In-adequate Immunization; Frequent diarrheal infections in past one year; Frequent ARI infections in past one year; Not –Exclusive Breast feeding; Late Weaning; Pre Lacteal feeding; Inadequate Consumptions of IFA Tablets during ANC by mothers; Low birth weight; deliveries at Home

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