

Research Article

Prevalence of multiple nutritional deficiencies among the street children of Khammam City of Telangana State

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ABSTRACT

Background: To study the nutritional status of the street children in Khammam city.

Methods: Type of study: A prospective and descriptive study. Study Population: All the street children in the city who are less than 18 years of age. Sample size: out of total 384 street children in the city, 250 were included in the study. Selection criteria: Children in different age groups of both sexes were selected. Data regarding nutritional and health status was collected by using pretested structured questionnaire after obtaining proper consent.

Results: A total of 250 street children were interviewed. Out of total 250 children included in the study 162 (68.4%) were undernourished (BMI < 18.5). 157 (62.8%) were suffering from nutritional anaemia. 38 (15.2%) children had various symptoms of Vitamin A deficiency. (Night blindness 8%, conjunctival xerosis 1.2%, Bitots spots 6%). A total of 62 (24.7%) children had various symptoms of group B vitamins deficiencies.

Conclusion: There is an urgent need of coordination among development agents working for the rights of street children and information sharing among all stakeholders to enhance implementation strategies.

Keywords: Street children, multiple nutritional deficiencies

INTRODUCTION

Street children are the children below 18 years of age, boys or girls, who are experiencing homelessness and primarily reside on the streets of the city. The place of their abode is the street, railway station, bus station, bridges, beneath the flyover, temples and dargahs.

UNICEF has defined three types of street children. Street living children, street working children and street family children.

- Street living children: children who ran away from their families and live alone in the streets. They are homeless street children. Most of them are boys. They leave home because of broken homes or problem families.

- Street working children: Children who spend most of their time on the streets, fending for themselves but return home on a regular basis.

They are deprived of their basic rights of survival, protection, development and participation. Malnutrition and hunger is widespread among them. Poor health is a chronic problem of street children. They are underweight and stunted. Street children in India face additional vulnerability because of their lack of access to nutritious food, sanitation, and medical care.¹ Street children are dependent for food on leftovers from small restaurants or hotels, food stalls, or garbage bins.¹

Vitamin A has a vital role in maintaining eye health and vision, growth, immune function and survival.² Vitamin A deficiency is the most important cause of preventable

blindness in young children.³ Incidence of morbidities, especially episodes of respiratory infection, diarrhoea, measles and childhood mortality are closely associated with Vitamin A deficiency.⁴ Iron deficiency anaemia is the most widely prevalent nutritional problem across the world⁵ affecting almost all age/sex/physiological groups; pre-school children, pregnant women and lactating mothers being the most vulnerable.⁶ About 60–70% of all children below 6 years of age suffer from various degrees of anaemia,⁷ significantly contributing to childhood morbidity and mortality.⁸

Objectives

To study the nutritional status of the street children in Khammam city.

To study the socio-cultural environment of the street children in Khammam city.

METHODS

The town of Khammam in the state of Andhra Pradesh, India has a highly volatile position with regard to the children in need of care and protection, specially the children on the street. While 70% of the children on the street belong to the socio-economically backward tribal communities surrounding the town, other children hail from other parts of the state and quite a few from the neighboring state who are denied the basic right to participation so that they are empowered. The town of Khammam also enjoys the major railway link between Vijayawada to Hyderabad. Addiction to street life, falling prey to the petty gangs operating across the town, prostitution and above all child trafficking, are some of the grave concerns and primary targets. The total children on the street during the year 2010 are 384.3.

Type of study: A prospective and descriptive study.

Study Population: All the street children in the city who are less than 18 years of age.

Sample size: out of total 384 street children in the city, 250 were included in the study.

Selection criteria: Children in different age groups of both sexes were selected. Children who did not cooperate, did not give consent or were missing for follow up were excluded from the study. A total of 250 street children were included in the study. Data regarding socio-cultural environment and health status was collected by using pretested structured questionnaire after obtaining proper consent. General physical examination of the children, anthropometry and health check up was done taking help of doctors from Community Medicine department following the standard methods. To detect Vitamin A deficiency signs of xerophthalmia were examined in the children. Similarly to detect multiple Vitamin B deficiencies (thiamine, niacin, riboflavin,

pyridoxine) various deficiency signs were examined in the children. To detect Nutritional Anemia hemoglobin estimation was done using Sahli's hemoglobin meter. Those children having hemoglobin levels less than 12g/dl were considered to have anaemia. Those children who require specialist services and investigations were taken to Mamata Medical College. Any disease identified was appropriately managed absolutely free of cost. Proper consent was obtained before any procedure. At least 20% of the questionnaires were cross checked by the study guide or senior faculty to ensure the quality of data. Data thus collected was analyzed in the Department of Community Medicine using SPSS software.

RESULTS

Table 1: Body Mass Index.

BMI	Frequency	Percentage
1. <18.5	162	64.8
2. 18.5-24.9	86	34.4
3. >25	2	0.8
Pooled	250	100

Mean: 17.58 & SD: 3.05; P value<0.05

Majority of the children i.e 64.8% were thin (BMI< 18.5) while only 34.4% had normal BMI (18.5-24.9). This difference was statistically significant. P<0.05

Table 2: Nutritional Anaemia.

Pallor	Frequency	Percentage
1. Present (Hb< 12g/dl)	157	62.8
2. Absent (Hb> 12g/dl)	93	37.2
Pooled	250	100

P value <0.05

Majority of the children i.e 62.8% had nutritional anaemia. This difference was found to be statistically significant. p<0.05.

Table 3: Vitamin A Deficiency.

Vitamin A deficiency	Frequency	Percentage
1. Normal	212	84.8
2. Night blindness	20	8.0
3. Conjunctival Xerosis	3	1.2
4. Bitot's spot	15	6.0
Pooled	250	100

P value <0.05

15.2% of the children were found to have various vitamin A deficiency signs.

Table 4: Vitamin Group B Deficiencies.

Vitamin B Deficiency	Frequency	Percentage
1. No deficiency	188	75.2
2. Dermatitis	5	2.0
3. Angular Stomatitis	20	8.0
4. Glossitis	14	5.6
5. Nerve Weakness	4	1.6
6. Fatigue	19	7.6
Pooled	250	100

P value <0.05.

24.8% of the children were found to have group B vitamin deficiency symptoms.

DISCUSSION

Out of total 250 children included in the study 162 (68.4%) were undernourished (BMI < 18.5). In India 44% of children under the age of five are underweight.⁹

157 (62.8%) children were suffering from nutritional anaemia. The prevalence was significantly ($p < 0.01$) higher when compared to 67% reported for children of rural India¹⁰ and the figures reported by for pre-school children of Africa (64.6%), Asia (47.7%) and the world (47%).¹¹

38 (15.2%) children had various symptoms of Vitamin A deficiency. (Night blindness 8%, conjunctival xerosis 1.2%, Bitots spots 6%). However, the prevalence was higher compared to the figures reported for pre-school children of rural India (0.8%) by National Nutritional Monitoring Bureau,¹⁰ Maharashtra (1.3%)¹² and Ethiopia (2.2%).¹³ A total of 62 (24.7%) children had various symptoms of group B vitamins deficiencies.

CONCLUSION

Despite the fact that several national nutrition programmes are in operation, especially for the benefit of children, the prevalence of micronutrient deficiencies, particularly among street children, continues to be of public health concern. There is a need for the sensitization of health functionaries and the community through Health and Nutrition Education (HNE) and appropriate Behavioural Change Communication (BCC) activities. These interventions should be aimed at addressing the adverse effects of micro-nutrient malnutrition and ensuring better coverage of national nutritional programmes as well as increasing compliance of the community for the success and sustainability of the programmes.

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REFERENCES

- Kombarakaran, Francis A. (2004). "Street children of Bombay: their stresses and strategies of coping". *Children and Youth Services Review* **26**: 853-871. doi: 10.16/j.childyouth.2004.02.025. Retrieved February 20, 2012.
- Sommer A, West KP Jr. 1996. *Vitamin A deficiency. Health and Survival and Vision*. New York: Oxford University.
- Vijayaraghavan K. 2002. Control of micronutrient deficiencies in India: Obstacles and Strategies. *Nutrition Reviews* **60**:73-76.
- Sommer A, Joanne Katz MS, Tarwoto I. 1984. Increased risk of respiratory disease and diarrhoea in children with pre-existing mild vitamin A deficiency. *Am J Clin Nutr* **40**:1090-1095.
- Carlos Alberto NA, Jose Edurado DO, Gerson CC, Rubens GR, Luiz Antonio DC, Marina Elisa CB. 2005. Effect of fortification of drinking water with iron plus ascorbic acid or with ascorbic acid alone on hemoglobin values and anthropometric indicators in preschool children in day-care centers in Southeast Brazil. *Food and Nutr Bulle* **26**:259-265.
- Agarwal KN. 2001. Iron and the brain: Neurotransmitter receptors and magnetic resonance spectroscopy. *Brit J Nutr* **85**(Suppl 2): 147-150.
- Kapur D, Agarwal KN, Agarwal DK. 2002. Nutritional Anaemia and its control. *Ind J Pediatr* **69**: 607-616.
- Stoltzfus RJ. 2001. Iron deficiency anemia: reexamining the nature and magnitude of the public health problem. Summary implications for research and programmes. *J Nutr* **131**(2S-2):697-700.
- Kanjilal, B et al. (2010). "Nutritional Status of Children in India: Household Socio-Economic Condition as the Contextual Determinant". *Int J for Equity in Health* **9**: 19. doi:10.1186/1475-9276-9-19
- NNMB (National Nutrition Monitoring Bureau). 2003. Prevalence of micronutrient deficiencies. Report no. 22. Hyderabad, India: National Institute of Nutrition, Indian Council of Medical Research.
- McLean E, Cogswell M, Egli I, Wojdyla D, de Benoist B. 2009. Worldwide prevalence of anemia. WHO vitamin and mineral nutrition information system, 1993-2005. *Public Health Nutr* **12**: 444-454.
- Arlappa N, Laxmaiah A, Balakrishna N, Harikumar R, Brahman GNV. 2008. Clinical and sub-clinical vitamin A deficiency among rural pre-school children of Maharashtra, India. *Ann Hum Nutr* **35**: 606-614.
- Asrat YT, Omwega AM, Muita JW. 2002. Prevalence of vitamin A deficiency among pre-school and school-aged children in Arsi Zone, Ethiopia. *East Afr Med J* **79**:355-359.

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