Original Research Article

A study of nutritional status and common health problems of street children in Bikaner, Rajasthan, India

Ram Narayan Sehra¹, Anil Bairwa², Poonam Chand Khatri²,
Pramod Kumar Berwal², Niranjana Nagaraj^{2*}

¹Department of Paediatrics, SMS Medical College, Jaipur, Rajasthan, India

²Department of Paediatrics, Sardar Patel Medical College, Bikaner, Rajasthan, India

Received: 21 August 2016

Accepted: 27 September 2016

*Correspondence:

Dr. Niranjana Nagaraj,

E-mail: getniranjan806@yahoo.com

Copyright: © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Background: Millions of children throughout the world live on street. These are amongst the most deprived and usually have no access to health care or education. The study aims to assess the nutritional status and to identify common health problems among street children in Bikaner, Rajasthan, India.

Methods: In this cross sectional study, conducted in designated slum areas of Bikaner (Rajasthan), a predetermined questionnaire was used to record various factors to assess their health problem, daily income, source of food, clothes, water, place of sleeping and toilet, educational status, immunization status, bad habits, psychological problems etc. Anthropometric measurements (weight and height) were taken to assess malnutrition among street children.

Results: Ninety eight percent of children were Hindu and 2% were Muslims. Eighty percent of street children were illiterate. No street child had history of sexual abuse in our study group. 41.5% children had normal nutritional status, while 35.5, 15.5, 6.5% and 1% children were suffering from PEM grade I, II, III and IV respectively. Most common health problems among street children was acute respiratory infection (32%) and 2% children had anemia, skin problems, diarrhea, abdominal pain, worm infestation, dental caries, convulsion, injury, jaundice, tuberculosis, and musculoskeletal pains.

Conclusions: The possible cause for PEM and health related problems in street children were extreme poverty, illiteracy, lack of Water and Sanitation facilities, exposure to polluted environment, lack of proper immunization and lack of knowledge to clinic site.

Keywords: Anthropometry, Bikaner, Nutritional status, Street children

INTRODUCTION

Millions of children throughout the world live on street. These are amongst the most deprived and usually have no access to health care or education. "Street children" were referred to as homeless, abandoned or runaways or "street child" was described as a child who lives and stays homeless in the city without parental care and finds his or her means of living in the streets.¹ India is the seventh largest country in the world with religious, cultural, linguistic and geographical diversity. It is one of the

fastest growing developing countries. According to UNICEF's estimate there were 11 million street children in India in 1994. There are estimated 100,000-125,000 street children each in Mumbai, Kolkata and Delhi, and 45,000 in Bangalore.² Religion of street children in India varies greatly according to area but in general, approximately 70% are Hindu, 18% are Muslim, 2% are Christian and others. Of these, 82.7% are boys.³

Several related economic, social and political factors have been linked with phenomenon of street children.

Land reform, population growth, drought, rural to urban migration, economic recession, unemployment, poverty, violence and family problems (quarrelling parents, alcoholic father, violence by fathers, step parents, lack of love and death of parents) have all been implicated.⁴

Street dwelling is likely to aggravate malnutrition among its residents due to extreme poverty, lack of dwelling and access to food and exposure to polluted environment.⁵ Certain socioeconomic factors have influence on nutritional status of the child. Malnutrition is largely a by-product of poverty, ignorance, insufficient education, inadequate sanitation, large family size etc. Homeless youth are at alarmingly high risk for a myriad of physical and psychological problems as a result of both the circumstances that preceded the homelessness and as direct consequences of life on street. They usually suffer from chronic diseases like TB, leprosy, typhoid, malaria, jaundice, and liver/kidney disorder. STDs (sexually transmitted diseases), pregnancy, trauma, uncontrolled asthma and dermatological.

Various studies have been carried out globally to identify the major determinants of PEM in children living in slums and on street. Most of these studies were focused on various factors like anthropometric measurement, influence of family conditions (economical), literacy, influence of environmental conditions etc. Various determinants affecting nutritional status & health of street children have not been previously reported from this region, so we decided to undertake this study in slum areas of Bikaner, Rajasthan, India.

METHODS

The study was carried out in the Department of Pediatrics, P.B.M. Hospital attached to Sardar Patel Medical College, Bikaner, Rajasthan, India from 2013 to 2014. This institute provides health and specialized medical care to population of Bikaner zone covering five districts i.e. Bikaner, Churu, Nagaur, Shriganganagar and Hanumangarh. In our study most of the children were "children with their families on street" and some were "children on street".

This study was undertaken in designated slum areas of Bikaner and children living/working on railway station, temples. It was a cross sectional study to assess the nutritional status and common health problems of street children. We got help from NGOs in gathering children for study. NGO gathered the children by organizing camps in slums and at various places.

The study was conducted by using a predetermined questionnaire. This study included 200 children of age group from 6 to 18 years. During the study, detailed interview of each child was taken to collect the required information about age, sex, religion, literacy, occupation, family contact, daily earning and daily expenditure. The children were asked about their living place, bathing,

toilet facility, clothing, sleeping place, food, hygiene and drinking water source. They were asked about safety and whether police exploited them or not. The children were asked about the health problems they have in the present or experienced in the past. They were asked about the history of illness, hospitalization, substance use and immunization. Both general physical and systemic examination were done to evaluate health problems. Height and weight were taken for nutritional assessment. Classification recommended by Indian academy of pediatrics in 1972 was utilized to classify children with various nutritional categories.⁶

Wasting and stunting among street children are defined as follows. The accepted cut offs for defining wasting and stunting are -2 SD or below 3rd percentile and waterlow's classification was used.⁷ Each child was weighed by using Soehnle Spring Machine. This machine was adjusted for zero reading before weighing. Each child was made to stand against a metal height measure scale fixed to rod. The child should stand with bare feet on a flat floor against a wall with feet parallel and with heels, buttocks, shoulders and occiput touching the wall. The head should be held erect with eyes aligned horizontally and ears vertically without any tilt. With the help of a wooden spatula or plastic rulers, the topmost point of the vertex is identified on the wall. All the collected data was tabulated and statistically analysed by using SPSS software.

RESULTS

Out of total 200 street children, 68.1% were in age group 6-10 year, 27.5% were in 11-15 year and 4% were more than or equal to 16 year. 70% children were male and 30% were female. Ninety eight percent of children were Hindu and 2% were Muslims. Majority of children (51.5%) belonged to Bhat caste while 18, 13.5, 9, 6 and 2% children belonged to caste Bajeeagar, Saansi, Dholi, Banjara and Muslims respectively. Eighty percent of street children were illiterate and 20% were literate.

Table 1: Prevalence of malnutrition among street children in Bikaner.

PEM grade	No. of street children	Percentage
Normal	83	41.5
I	71	35.5
II	31	15.5
III	13	6.5
IV	2	1

Ninety seven percent of street children had regular contact with family, 2% had occasional contact and 1% had no contact with their family. Eighty seven percent of street children were unimmunized, 13% were partially immunized while no child was fully immunized. No street child had history of sexual abuse in our study group. 38.5% children were doing no job while 33.5, 9, 9,

5.5 and 3.5% children were doing street vending, shoe polishing, labour, newspaper selling and rag/cup picking respectively. 41.5% children had normal nutritional

status, while 35.5, 15.5, 6.5% and 1% children were suffering from PEM grade I, II, III and IV respectively (Table 1).

Table 2: Prevalence of stunting and wasting among street children in Bikaner.

Weight for height	Height for age	No. of Children	Percentage	Label
>80%	>90%	116	58	Normal
>80%	<90%	48	24	Stunted
<80%	>90%	34	17	Wasted
<80%	<90%	2	1	Wasted & Stunted

70.5% street. Children had no use of substance while 12, 12.5, 2 and 3% children were smokers, tobacco-chewer, taking alcohol and pan masala chewer respectively. Fifty eight percent street children were having normal nutritional status, 24% were stunted, 17% were wasted and. 1 % was both stunted & wasted.

Most common health problems among street children was acute respiratory infection (32%) and 2% children had anemia, skin problems, diarrhea, abdominal pain, worm infestation, dental caries, convulsion, injury, jaundice, tuberculosis, and musculoskeletal pains (Table 2).

Table 3: Common health problems among street children in Bikaner.

Health problems	No. of street children	Percentage
* Respiratory problems	64	32
Anemia, Pica	36	18
Skin problems	29	14.5
Diarrhea	22	11
Abdominal pain	19	9.5
Worm infestation	16	8
Dental caries	16	8
Convulsions	14	7
Injury during work or fight	14	7
Jaundice	4	2
Musculoskeletal pains	4	2
Tuberculosis	4	2
Leprosy	NIL	NIL

In present study group 91% of street children had no history of prior hospitalization while 9% had history of hospitalization. 38.5% of street children had no earning while 47% and 14.5% children had earning between 0-50 Rs, 50-100 Rs. per day respectively, while no child was earning more than 100 Rs.

Eighteen percent of street children were engaged in stealing, 12.5% used obscene language, 2.5% were using weapon while fighting and 1% used to destroy properties.

DISCUSSION

In present study group most of the street children were 'children with their families on street'. These children are pushed to begging and other vices by their parents to make a significant contribution to their family income. About 70% of children were male and 30% children were female in our study group.

Majority (68.5%) of street children belonged to age group 6-10 year while 27.5% and 4% were in age group 11-15 year and >16 year respectively. On the other hand, study carried out by N.S. Manihara et al observed that 82.7% of street children were boys and 33% street children belonged to age group 6-10 yr while 40% and 27% children were in age group 11-15yr and > 16yr respectively.³

Majority of street children (98%) in present study group belonged to Hindu families and 2% to Muslim families. N.S. Manihara et al reported that in India 70% of street children were Hindu, 18% were Muslims and 2% were Christian and others.³ This difference is because religion of street children varies according to region. In present study majority (51.5%) of street children belonged to caste Bhat, while 18, 13.5, 9, 6 and 2% children belonged to caste Bajeeagar, Saansi, Dholi, Banjara and Muslims respectively. Educational status is an important variable affecting various aspects of children's wellbeing.

In our study, 80% of street children were illiterate while 20% were literate. Low level of literacy is due to poverty, ignorance and illiteracy of parents. Ninety four percent of street children in our study group had regular family contact while 2 and 1% children had occasional and no contact with family respectively. In our study most of the street children were living with their families on street so they had regular contact with their family.

The overall immunization coverage in our study was much below expectations. About 87% of children were unimmunized, 13% were partially immunized and no child was fully immunized. However similar poor immunization coverage has been reported in other studies

conducted in urban slum areas. When reasons for none or partial immunizations of children were analyzed, it was observed that parents of children were illiterate. The other reasons were lack of motivation by primary health care providers, fear of side effects and ignorance.

In present study, no child had history of sexual abuse. Pagare et al in his study reported that 38% of street children had suffered sexual abuse.⁸

This difference is because street children in our study were living with their families hence they were protected against such abuse or they were hesitant to tell the truth to interviewer. Probably the children required privacy and a congenial atmosphere during interview. In present study, 38.5% of street children were not doing any job, 33.5% were street vendors, while 9, 9, 5.5 and 3.5% children were doing shoe polishing, labour, newspaper selling and rag/cup picking respectively.

In present study 41.5% children were having normal nutritional status. Majority (35.5%) of street children suffered from PEM grade I and 15.5, 6.5 and 1% children were suffering from PEM grade II, III, IV respectively (Table 1). Ray SK et al reported in his study that 16% were severely malnourished (PEM grade III and IV).⁵ The difference in these studies may be because of household possession which protects them against severe malnutrition.

Majority of children (70.5%) in present study did not have any substance use, 12.5% of children were tobacco-chewers while 12, 2, and 3% children were smokers, taking alcohol and chewing pan masala respectively. High incidence of nonuse of substance may be because they were living with their families. In our study 58% of street children were having normal nutritional status as per Waterlow's classification of malnutrition.⁷

Twenty four percent were stunted while 17% and 1% children were wasted and both wasted and stunted respectively. Ray SK et al reported in his study that about 35% and 70% street children had wasting and stunting respectively.⁵ This difference may also be due to household possession and better nutritional care of the children.

Most of the street children (32%) had respiratory problems (Table 3). Eighteen percent had anemia, 14.5% had skin problems, 11% suffered from diarrhea, 9.5% complained of abdominal pain and 8% had dental caries and worm infestation each. Seven percent suffered from convulsion, 7% got injured during work or fight, 2% had jaundice, tuberculosis and musculoskeletal pains each. Rehman et al Reported in his study that 71% children had respiratory problem, 28% had diarrhea (Table 3).⁹

This difference in both studies may be because of seasonal and regional variation of infectious diseases. Ninety one percent of street children in our study group

had no history of prior hospitalization and only 9% had history of hospitalization. History of less hospitalization may be due to ignorance, poverty, lack of knowledge of clinic site or hospital and/or lack of faith in allopathic treatment.

Majority of street children (47%) had daily earning of less than 50 Rupees, 14.5% of them had earnings of more than 50 Rupees but less than 100 Rs. No child was earning more than 100 Rupees while 32.5% children had no earning. In present study 12.5% of street children were using obscene Language, while 9% were involved in stealing, 2.5% were using weapons during fighting and 1% did destruction of properties.

CONCLUSION

In the present study, the possible cause for PEM and health related problems in street children were extreme poverty, illiteracy, lack of Water and Sanitation facilities, exposure to polluted environment, lack of proper immunization and lack of knowledge to clinic site.

To prevent malnutrition and health problems among street children, following measures may be considered based on finding of present study: Give them proper immunization coverage, Provide vocational training to them, Give them primary school and health education, Direct NGOs toward slums area and improve their living standard and hygiene, Direct National health programmes towards slums.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. Scanlon TJ, Tomjins A, Lynch MA, Scanlon F. Street children in Latin America. *BMJ*. 1998;316:1596-600.
2. A civil society forum for south Asia on promoting and protecting the rights of street children. 2001:12-4.
3. Kombarakarn FA. Street children of Bombay, Their Stresses and Strategies of Coping. *Children and youth Service Review*. 2004;26:865.
4. Williams C. Who are "street children?" A hierarchy of street use and appropriate responses. *Child Abuse Negl*. 1993;17:831-41.
5. Ray SK, Mishra R, Biswas R, Kumar S, Haider A, Chatterjee T. Nutritional status of pavement dweller children in Calcutta city. *Indian J Public Health*. 1999;43:49-54.
6. Ghai OP. *Essential Pediatrics*, 6th edition. 2004:101.
7. Meharban singh. *Pediatric clinical method*, 2nd edition. 2004:62.

8. Pagare D, Meena GS, Jelohka RC, Singh MM. Sexual abuse of street children brought to an observation home. *Indian Paediatr*. 2005;42:1134-9.
9. Rehman MM, Shahidullah M. Risk factors for acute respiratory infections among the street children in Dhaka city, Bangladesh *Med Res Counc Bull* 2001;27:55-62.

Cite this article as: Sehra RN, Bairwa A, Khatri PC, Berwal PK, Nagaraj N. A study of nutritional status and common health problems of street children in Blkaner, Rajasthan, India. *Int J Community Med Public Health* 2016;3:3040-4.