Assessment of Undernutrition Level among the Street Children in Kolkata, West Bengal, India

Mahuya Majumder[1], Sarmistha Chakrabarti[2] &
Suniti Ghosh (chatterji)[3]

[1]Assistant teacher, Kalyani Shikshayatan (H.S.) & PhD scholar of C.U.
[2]Associate Prof. Dept of Home Science, University of Calcutta
[3]Retired Associate Prof. Dept of Home Science, University of Calcutta

Abstract

Background: *Street children are considered to be a high risk group for under nutrition especially protein and calorie deficiencies.* ***Objective:*** *The aim of this study was to investigate the health status of the children aged from 3 to 18 years living in the streets of Kolkata metropolitan city.* ***Materials & Methods:*** *A cross sectional study was conducted on 540 street children aged from 3 to 18 years in different 10 zones in Kolkata. Duration of data collection was six months. Body weight, height, dietary intake and health consciousness of the children were assessed in the survey.* ***Results:*** *In total 540 street children of the aged from 3 to 18 years were examined, out of which 331(61.29%) were boys and 209(38.71%) were girls. Low BMI prevalence was 62.40%, protein deficiency was 51.85% and calorie deficiency was found to be 60.00%. Health consciousness and substance abuse had great influence on their nutritional status. (p=0.000).* ***Conclusion:*** *Health status of the examined street children was quite poor. Reasons for such findings can be lack of awareness regarding diet & hygiene, financial constraints to afford nutritious foods, timely health check up and substance abuse and also lack of nutrient like vitamin and protein.*

Key Words: *Street Children, BMI, under nutrition, substance abuse, health consciousness*

INTRODUCTION:

Street children are a term for children experiencing homelessness who live on the streets of a city, town, or village. Homeless youth are often called street kids and street youth; the definition of street children is contested, but many practitioners and policymakers use UNICEF's concept of boys and girls, aged under eighteen years, for whom "the street" (including unoccupied dwellings and wasteland) has become home and/or their source of livelihood, and who are inadequately protected or supervised.[1]The street children in India choose to leave their families and homes for three strategic reasons - urban poverty, families, and urbanization. They are result of increasing poverty & unemployment, increased migration of families, broken families, neglect, abuse and violence, armed conflicts, natural and manmade disaster, decreasing resources in rural areas and the attraction of cities. [2] Not only they are exposed and susceptible to disease, they are also unlikely to be vaccinated or receive medical treatment.[3] Street children in India face additional vulnerability because of their lack of access to nutritious food, sanitation, and medical care. Street children lack access to nutritious food because many are dependent on leftovers from small restaurants or hotels, food stalls, or garbage bins. It is observed by Meena Mathur that food habits and food intake depends on socio economic status, literacy level and also awareness. street children mostly suffer from different types of nutrient deficiencies.[4] In a number of studies prevalence has to be higher among boys. A survey on health status of street children in selected wards of urban area, it was found that prevalence of malnutrition was 77.00%.[5] Hence the present study aims to assess the health status and health consciousness of street children in Kolkata city, West Bengal.

MATERIALS & METHODS:

A total of 540 street children aged up to 18 years participated in this cross sectional and descriptive study. These were drawn from different places in Kolkata city. According to the Assembly (Vidhansabha) constituencies, 10 zones were chosen for the survey on the street children. The zones were – Kolkata port, Bhabanipur, Rashbehari, Ballygunge, Chowringhee, Entally, Beleghata, Jorasanko, Shyampukur and Maniktala. The samples taken from the zones were 44, 53, 60,57,56,58,53,61,52 &46 respectively. The respondents (street children) were visited for the data collection through observation, interviews and measurements. The survey was done in 6 months.

In a pilot study on 27 street children of Kolkata, 20 were found malnourished. So, proportion of malnourished children=20/27*100%=74% among street children was considered. P=0.74 and at 95% confidence level and 5% allowable relative error, sample size=n= $(1.96)2*p$ (1-p)/L^2 =540. A sample of 540 street children was selected randomly. Of these 331 (61.29 %) were boys and 209 (38.70%) girls. The sample represented the west, east, north, south and central parts of Kolkata city.

Clearance from University Bio ethics committee for Animal and Human Research studies, Calcutta University was obtained. Consent was taken from the children or parents before survey.

A self administered, predesigned and pretested semi structured anonymous questionnaire was used for collecting information. Suitable time schedule was fixed for the survey without hampering their daily working schedule. Information regarding the demographic factors, personal habits and oral hygiene practices was obtained from 10-15 study subjects in a day by interviews method using the questionnaire in a private area away from other participants. Guardians of the children aged 3-10 years were allowed with them.

The primary data included socio-economic status, food consumption, and nutritional aspects involving anthropometric data of street children and blood hemoglobin level, blood glucose level, and health status (oral health status, diarrhea, skin infection).On the day of the survey participants were briefed about the objective of the study as well as the questionnaire. Their willingness to participate in the study was obtained and questionnaires were filled by obtaining information from them of their guardian within specific time period.

The data obtained from questionnaires and already edited on field was entered into the computerized file by using the software of Microsoft excels. Categorization and tabulation were made for the health status of children. The resultant mean, standard deviation, frequency and proportion were presented in the form of tables. Means, standard deviation, frequency and proportion as well as tabulation were calculated with a combination of software applications: Microsoft Excel and Statistical Analysis System (SPSS).

RESULTS:

Out of the 540 street children 331 (61.29%) were boys and 209 (38.70%) were girls in the present survey. [Table – 1].

The number of participants belonged to the age group of 6 to 13 years 285 (52.77%) was more than 3- up to 6 years 148 (27.40%) and 13 – up to 18 years 107 (19.81%). [Table – 2]

Majorities of their mothers were illiterate 313 (57.96 %) and the rest 227 (42.04 %) studied up to primary. [Table – 3]

Most 456 (84.44 %) of the street children belonged to lower socio-economic status (using Prasad's socio economic status classification for 2015).[6] [Table – 4]

Majority of the children 338 (62.59%) did not have sufficient breast milk (exclusive breast feeding up to 6 months from delivery) from mother during their childhood. [Table – 5]

It was also observed that health consciousness had a great influence on the health status of the street children. Unhealthy habits like irregular brushing, improper mouth washing, substance abuse, irregular bathing, wearing dirty clothes and skipping meal were certainly the main causes of poor nutritional status of the street children. Among 540 street children only 128 (23.70%) showed health consciousness in the survey. [Table – 6]

According to the present study, 189 (35%) indulged in substance abuse at some time in their life. The most common substance abused was tobacco in the form of cigarettes or *bidis, gutkha* and an inhalant substance, 'whitener'– a white fluid containing organic solvents, used to erase errors in hand written, printed papers. Multiple responses to the type of substance abuse were observed. It was also observed that health consciousness had a great influence on the health status of the street children. [Table – 7]

Among the street children, under-nutrition was prevalent for the age group 6 – up to 13 years. The difference was significant with the other groups. (p < .0001) [Table-8]

51.85% of the street children were found to have protein energy malnutrition. It was observed that low family income, insufficient breast feeding, substance abuse and lack of health consciousness were associated with this problem [Table – 9]

Among the street children calorie deficiency was prevalent for the age group 6 – up to 13 years, the difference being significant. (p < .0001) [Table – 10]

TABLE 1 : AGE WISE DISTRIBUTION OF SAMPLE:

AGE GROUP IN YEARS	FREQUENCY	PERCENTAGE
3- UP TO 6	148	27.41%
6- UP TO 13	285	52.78%
13- UP TO 18	107	19.81%
TOTAL	540	100.00%

TABLE - 2
GENDER WISE DISTRIBUTION OF SAMPLE:

GENDER	FREQUENCY	PERCENTAGE
BOYS	331	61.30%
GIRLS	209	38.70%
TOTAL	540	100.00%

TABLE-3
MATERNAL LITERACY WISE DISTRIBUTION OF SAMPLE:

MATERNAL LITERACY LEVEL	FREQUENCY	PERCENTAGE
ILLITERATE	313	57.96%
LITERATE	227	42.04%
TOTAL	540	100.00%

TABLE-4
PER CAPITA INCOME WISE DISTRIBUTION OF SAMPLE:

PER CAPITA INCOME	FREQUENCY	PERCENTAGE
<942	456	84.44%
>942	84	15.56%
TOTAL	540	100.00%

TABLE-5
BREAST FEEDING DURATION WISE DISTRIBUTION OF SAMPLE:

DURATION OF BREAST FEEDING	FREQUENCY	PERCENTAGE
<6 MONTHS	338	62.59%
>6 MONTHS	202	37.41%
TOTAL	540	100.00%

TABLE-6
HEALTH CONSCIOUSNESS WISE DISTRIBUTION OF SAMPLE:

HEALTH CONSCIOUSNESS	FREQUENCY	PERCENTAGE
YES	128	23.70%
NO	412	76.30%
TOTAL	540	100.00%

TABLE-7
SUBSTANCE ABUSE WISE DISTRIBUTION OF SAMPLE:

SUBSTANCE ABUSE	FREQUENCY	PERCENTAGE
YES	189	35.00%
NO	351	65.00%
TOTAL	540	100.00%

TABLE-8: PREVALANCE OF UNDER NUTRITION ACCORDING TO BMI

INDEPENDENT VARIABLE	TYPE	YES	NO	p VALUE
AGE (YEAR)	3- UP TO 6	87	61	<0.0001
	6- UP TO 13	201	84	
	13- UP TO 18	49	58	
GENDER	BOY	208	123	0.862
	GIRL	129	80	
MOTHER'S QUALIFICATION	ILLITERATE	206	107	0.067
	LITERATE	131	96	
MONTHLY PER CAPITA INCOME	≤ Rs 942	302	154	<0.0001
	> Rs 942	35	49	
BREAST FEEDING DURATION	≥6 MONTHS	50	152	<0.0001
	<6 MONTHS	287	51	
HEALTH CONCIOUSNESS	YES	26	102	<0.0001
	NO	311	101	
SUBSTANCE ABUSE	YES	33	156	<0.0001
	NO	304	47	

TABLE-9: PREVALANCE OF PROTIEN DEFICIENCY

INDEPENDENT VARIABLE	TYPE	YES	NO	p VALUE
AGE (YEAR)	3- UP TO 6	89	59	0.0596
	6- UP TO 13	138	147	
	13- UP TO 18	53	54	
GENDER	BOY	155	176	0.004
	GIRL	125	84	
MOTHER'S QUALIFICATION	ILLITERATE	171	142	0.152
	LITERATE	109	118	
MONTHLY PER CAPITA INCOME	≤ Rs 942	206	250	<0.0001
	> Rs 942	74	10	
BREAST FEEDING DURATION	≥6 MONTHS	79	123	<0.0001
	<6 MONTHS	201	137	
HEALTH CONCIOUSNESS	YES	37	91	<0.0001
	NO	243	169	
SUBSTANCE ABUSE	YES	65	124	<0.0001
	NO	215	136	

TABLE-10: PREVALANCE OF CALORIE DEFECIENCY

INDEPENDENT VARIABLE	TYPE	YES	NO	p VALUE
AGE (YEAR)	3- UP TO 6	81	67	<0.0001
	6- UP TO 13	194	91	

	13- UP TO 18	49	58	
GENDER	BOY	178	153	0.0003
	GIRL	146	63	
MOTHER'S QUALIFICATION	ILLITERATE	193	120	0.402
	LITERATE	131	96	
MONTHLY PER CAPITA INCOME	≤ Rs 942	287	169	0.001
	> Rs 942	37	47	
BREAST FEEDING DURATION	≥6 MONTHS	57	145	<0.0001
	<6 MONTHS	267	71	
HEALTH CONCIOUSNESS	YES	71	57	0.273
	NO	253	159	
SUBSTANCE ABUSE	YES	94	95	0.0005
	NO	230	121	

DISCUSSION: Out of 540 study subjects, boys were 62.71% and girls were 37.29%. This is accordance to the study conducted by FK Kahabuka et al (2006)[3] reported 68% boys and 32% girls and in contrast to the study conducted by Elsa K Delgado et al (2009))[7] and Pisarn et al (2006))[8] who observed 48.6% boys and 53.3% girls, 42.9% boys and 57.1% girls respectively.

In the present study 540 children belong to the age group of 3 to 18 years. Mean age of study subject was 11.125 year. Majority of the children belong to 3-10 years (59.38%) than 11-18 years (40.63%). This is in accordance to study conducted by R Contreras- Bulness et al (2008)[9] reported that 32(10.3%)belong to 15 years of age. Many studies have determined that street children are most often ages between 10-14 years.

According to a research report[5],the greater bulk of street children were found in underweight gainers due to lacked access to safe drinking water, scanty nutritious foods consumption, low nutritional knowledge, lack of hygiene practices and shelter facilities. There were observed 62.40% underweight in the conducted study which is comparable to the findings of various studies in various time frames in various countries.

In our study protein deficiency was found 59% and calorie deficiency was present 61% among the street children. This is accordance with the study done by a group in Khammam city of Andhra Pradesh where malnutrition was found 64.7%.[10]

CONCLUSION: Life on the street continues to have an adverse effect on the health of children living and working on the street, particularly young children below 13 years. Street children have a higher risk of experiencing health problems because their young age increases their vulnerability. Lack of protein and calorie intake causes malnutrition among them. Healthy habits like regular brushing, proper mouth washing, no substance abuse, regular bathing, wearing clean clothes and not skipping any meal were encouraged. New mothers were advised to give exclusive breast milk to their babies. At the end of the survey, idea about low cost nutritious food was given among the street children and their mothers to combat malnutrition. Further study in detail is needed to give an overall idea about health status of the street children of Kolkata metropolitan city. Along with the government, different national and international NGOs, child rights organizations and human rights organizations should speed up their level best educational, health, nutrition and hygiene programs with a view to attain their splashing childhood.

REFERENCES:

1. ST de Benitez. State of the world's street children: violence. Consortium for street children(UK); 2007
2. World Health Organization. Programme on Substance Abuse. July 1993 .
3. Kahabuka FK, Mbawalla HS. Oral Health Knowledge and practices among Dar es Salaam institutionalized former street children aged 7-16 yrs. Int J Dent Hygiene 2006;4:174-178
4. Mathur, M (2009). 'Incidence, type and intensity of abuse in street children in India'. Child abuse neglect, 33(12), 907-913
5. Rathod. N, Warbhe. P, ' Assessment of nutritional status of street children in selected wards of an urban area.International Journal of interdisciplinary and multidisciplinary studies.2014: Aug;1(8)136 – 143
6. Prasad, B.G. modified SES scale on Dec'2016(base year 2001)
7. Elsa K Delgado, Martin H Hobdell and Eduardo Bernabe (2009). Poverty, social exclusion and dental caries of 12 – year-old children: a cross – sectional study in Lima, Peru. BMC oral health 2009; 9:1-6.

8. Pisarn Techakasem, Varuna Kolkijkovin. Runaway youths and correlating factors, study in Thailand. J Med Assoc Thai 2006; 89(2):212-216.

9. R Contreras Bulnes, Reyes-Silveyra, T Fuentes, Escamilla and Rodriguez.

Dental caries and treatment needs in street children in Toluca, Mexico. Int Dent J 2008; 58: 134-138.

10. Berad, A.S., Momula, S., Kumar, R, ' study of health status of street children in Khammam city of Andhra Pradesh'. Int J Res Med Sci. 2014; 2(4): 1500-1503