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Original Research Article

Cross-sectional comparative study of socio-demographic and health profile of children in a NGO- run open house and street children in a metropolitan city

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ABSTRACT

Background: Street children are underprivileged urban children who suffer poverty, deprivation of education, vulnerability to various types of abuse, lack of supervision by adults, and with varying status of street-based existence and contact with their families. The study compares the socio-demographic and health profiles of children in a NGO-run Open House and street children.
Methods: Respondents satisfying intake criteria were interviewed using a pre-tested questionnaire and their height and weight were measured and the data were statistically analysed.
Results: 72% were aged between 12-16 years. Their occupations included rag picking, unorganised labour, street vending, cleaning vehicles, hotel work and begging. The reasons for street living were parental abuse, poverty, parental death, or peer pressure. Between the two groups of children, there were significant differences in frequencies of genital lesions (p=0.014; OR=0.465), injuries (p=0.01; OR=0.5), scabies (p=0.01; OR=0.31), and pyoderma (p=0.03; OR =0.38). A majority from both groups chewed tobacco regularly, some were addicted to more than one substance and had started using addictive substances due to peer pressure or to alleviate depression.
Conclusions: Multi-pronged interventions ought to focus on improving income levels and housing of impoverished families, curbing parental abuse, and providing educational and health care facilities, establishing more number of drop-in Open Houses, providing avenues for legal income, and educating on the hazards of promiscuity and substance abuse.

Keywords: Homeless children, Morbidity profile, Street children

INTRODUCTION

Street children are found in larger numbers in the developing countries, as compared to that in the developed countries. There are wide discrepancies in the estimates of street children globally and in the developing countries.[1] Estimating the number of street children living in India is a complex task due to frequent changes in their places of residence and workplaces and their itinerant lifestyles.[2] A Jaipur-based study reported that street children were subjected to five types of abuse: general abuse and neglect, health abuse, verbal abuse, physical abuse, psychological abuse, and sexual abuse and that older children and children with higher incomes were abused more than younger children and children with lower incomes.[3]

Street children and neglected children are important challenges for human society. These constitute that part of our new generation, which will cause burden and problems in the years to come. Many non-governmental organizations (NGOs) are providing various facilities

including day care centres and open houses for these children.

This cross-sectional study was conducted to compare the socio-demographic and health profiles of children in a NGO-run open house and street children.

METHODS

This cross-sectional comparative study was conducted in the city of Mumbai in Western Maharashtra. After getting approval from the Institutional Ethics Committee and the respective institutional authorities for conducting the study, the purpose of the study was explained to the NGOs, prospective participants, elders and stake holders in the local communities and it was clarified that the participants would not receive any incentive in cash or kind. Prior permission was obtained from the NGO-run Open House authorities for conducting the study.

Convenience-based sampling was used due to non-availability of a sampling frame of street children in Mumbai city and because of intricacies involved in locating street children who would be willing to participate in the study. Male children aged between 12 and 18 years who stayed in their current habitat for more than one year and consented to participate in the study were included in the study. Female children were not included in this study since it was difficult to ensure the presence of a female observer/attendant during interview and clinical examination by the investigator (male).

After obtaining consent of elders and the respondents themselves, the interviews were conducted using a pre-tested questionnaire at the daily habitat of the respondents so that their routine would not be disturbed.

Height of the children was measured by asking the children to stand erect touching a standard scale marked on a vertical wall with no footwear, headwear and heels touching the wall. Weight was taken on a pre-calibrated electronic balance with the child standing in the middle of the weight bearing pad with minimal clothing. Body mass index was calculated using the formula: BMI= [Weight in kg] / [Height in metres]^2. General and systemic medical examination was performed with the consent of their elders and the respective authorities. The presence of anaemia and vitamin deficiencies was determined clinically.

Operational definitions

The UNICEF's concept of street children was used to define the subjects for the study. Accordingly, the term "street children" included all children aged less than eighteen years, for whom "the street" has become home and/or their source of livelihood, who are inadequately protected or supervised, who have continuous contact with their families, who may have occasional family contacts, and children living in the street who are on their own (may be abandoned or not desirous of being with family). The common denominator in this definition is the child who lives on street with or without family.[4] Substance abuse was defined as harmful or hazardous use of psychoactive substances, including alcohol and illicit drugs.[5]

The data were statistically analysed using EpiInfo Version 7.0 (public domain software package from Centre for Disease Control and Prevention, Atlanta, GA, USA). Statistical significance of difference (taken as p-value<0.05) was calculated using Karl Pearson's Chi-square test (with Mantel-Haenzel correction where applicable) or standard error of difference between two means and Odds Ratio (OR).

RESULTS

A total of 300 children, 150 children from NGO run open house and an equal number of street children, who satisfied inclusion criteria and who agreed to participate in the study were included.

Demographics

Majority (72%) of the respondents were between 12-16 years of age. The religion-wise distribution, family structure, duration of street-based living and educational status of the respondents in the two groups are depicted in Table 1.

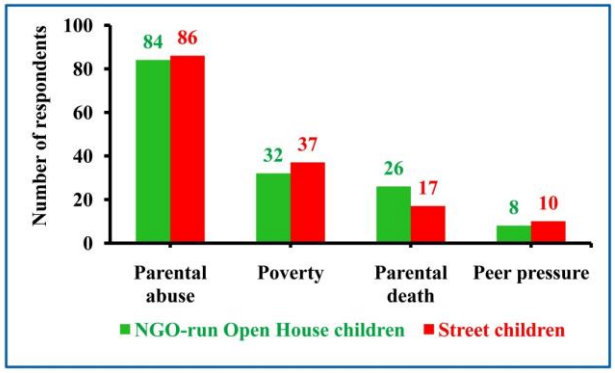

Figure 1: Type of work done.

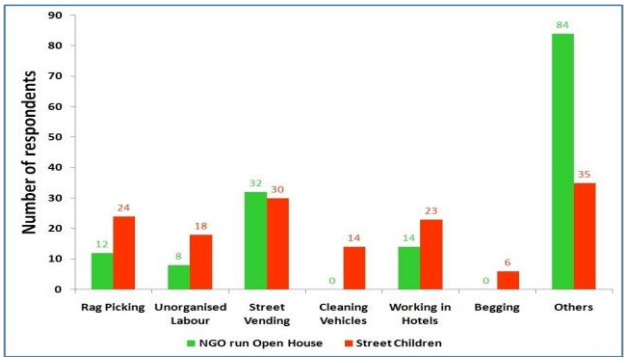

Figure 2: Reason for living on the street.

There were very few Christians and Sikhs in both the groups. Those engaged in unorganized labour among the NGO run open house children and street children constituted 5.33% and 12%, respectively (Figure 1). The number of children involved in begging and rag picking was significantly lower (p=0.003; OR=0.34) among NGO-run open house children, as compared to street children (Figure 1). Both groups of children had left their homes to live on the street due to parental abuse, poverty, parental death, or peer pressure. (Figure 2) Night shelters for street children were pavements (56%), railway platforms (30.67%) and temples and dargahs (13.33%).

Table 1: Demographic profile.

Demographic Parameters		NGO-run open house (n = 150)		Street children (n = 150)		Chi^2 value#	p value
		Number	Percentage	Number	Percentage		
Age Group (years)	12 – 14	66	44.00	56	37.33	1.39	0.5
	14 – 16	44	29.33	50	33.34		
	16 – 18	40	26.67	44	29.33		
Religion	Hindu	108	72.00	98	65.34	1.57	0.46
	Muslim	36	24.00	44	29.33		
	Others	6	04.00	8	05.34		
Type of family	Joint	14	09.34	20	13.33	1.27	0.53
	Nuclear	92	61.33	90	60.00		
	Extended nuclear	44	29.33	40	26.67		
Duration of street living (years)	1 – 3	22	14.67	32	21.33	4.04	0.25
	3 – 5	54	36.00	40	26.67		
	5 – 7	38	25.33	40	26.67		
	>7	36	24.00	38	25.33		
Education before coming to present location	No education	86	57.33	90	60.00	0.351	0.83
	Up to 2 years schooling	54	36.00	52	34.66		
	Vocational training	10	06.67	8	05.34		
Education after coming to present location	No education	12	08.00	140	93.33	218.5	0
	School education	96	64.00	6	04.00		
	Vocational training	42	28.00	4	02.67		

Chi-square test with Mantel-Haenzel correction where applicable.

Anthropometry

The median height (Figure 3), weight (Figure 4) and BMI (Figure 5) of street children was more than that of children from NGO-run open house.

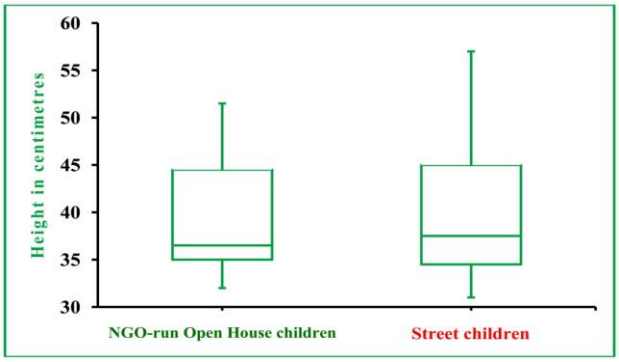

Figure 3: Distribution of heights of respondents.

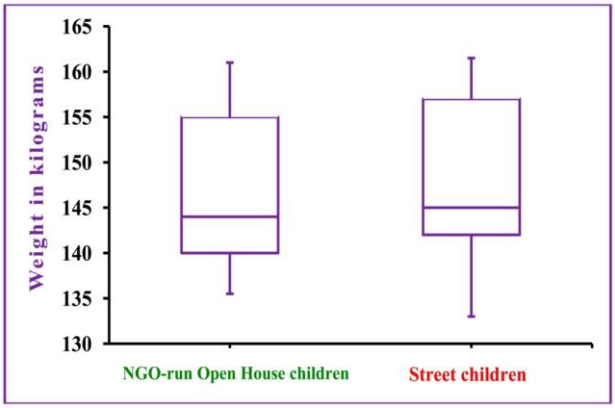

Figure 4: Distribution of weights of respondents

The third quartile and maximum value of BMI (Figure 5) was slightly higher in children from NGO-run open house. However, these differences were not significant.

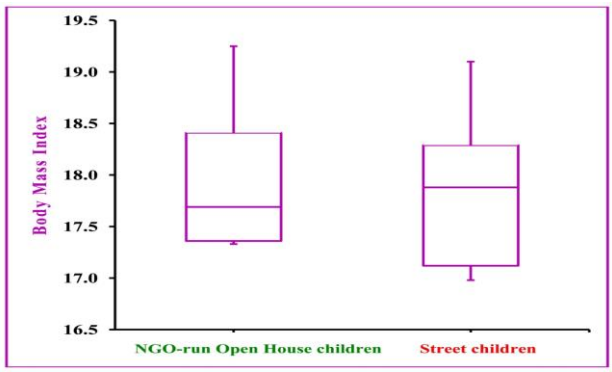

Figure 5: Distribution of body mass index of respondents.

Deficiency diseases

The difference in frequency of clinically determined anaemia (pallor) among the two groups was not statistically significant. (p=0.813; OR=0.95). The differences in frequency of clinically apparent vitamin deficiencies were not statistically significant (Table 2).

Morbidities

The difference in frequencies of upper and lower respiratory tract infections, eye and ear morbidities, diarrhoea, and worm infestations was statistically insignificant. However, the differences in frequencies of dental caries was statistically significant (p=0.008; OR=0.377). Enlarged cervical (5-9.33%), inguinal lymph nodes (1-2%), tuberculosis (3.33-4.67%) and leprosy (3.33-4%) were detected in all the groups and the inter-group differences were not significant. Statistically significant inter-group differences were observed in the frequencies of genital lesions (p=0.014; OR=0.465), injuries (p=0.01; OR=0.5), scabies (p=0.01; OR=0.31), and pyoderma (p=0.03; OR =0.38).

However, 2-4% of respondents in both groups had fungal infections of skin with insignificant statistical differences. The median time lag for initiation of treatment after onset of symptoms among children from NGO-run open house and street children was 4 days and 5 days, respectively with a range of 3-5 days and 2-11 days, respectively (Table 3).

Table 2: Clinically apparent deficiency diseases.

Deficiency diseases	NGO-run open house (n = 150)		Street children (n = 150)		Chi^2 value#	p value
	Number	Percentage	Number	Percentage		
Anaemia	58	38.67	60	40.00	0.056	0.813
Vitamin A	66	44.00	60	40.00	0.492	0.482
Vitamin C	10	06.67	12	08.00	0.196	0.657
Vitamin B complex	22	14.67	24	16.00	0.103	0.749
Vitamin D	06	04.00	06	04.00	0	1

Chi-square test with Mantel-Haenzel correction where applicable.

Table 3: Morbidities.

Morbidity	NGO-run open house (n = 150)		Street children (n = 150)		Chi^2 value #	p value
	Number	Percentage	Number	Percentage		
URTI	40	26.67	32	21.33	1.17	0.28
LRTI	24	16.00	26	17.33	0.096	0.756
Myopia	56	37.33	60	40.00	0.79	0.67
Other eye diseases	10	06.67	14	09.33		
Blindness (unilateral)	2	01.34	4	02.67		
Excess wax	16	10.67	18	12.00	0.651	0.722
Otitis externa	10	06.66	8	05.33		
Otitis media	14	09.33	18	12.00		
Mucous Diarrhoea	16	10.67	18	12.00	0.133	0.715
Watery Diarrhoea	18	12.00	20	13.33	0.12	0.728
Worm infestations	22	14.67	28	18.67	0.864	0.352
Dental caries	17	11.33	38	25.33	9.82	0.008 *
Cervical LNE	12	08.00	14	09.33	0.168	0.681
Inguinal LNE	2	01.33	2	01.33	0	1
Tuberculosis	5	03.33	7	04.67	0.346	0.556
Leprosy	5	03.33	6	04.00	0.094	0.759
Genital lesions	18	12.00	34	22.67	5.95	0.014 *
Injuries	25	16.67	43	28.67	6.16	0.01 *
Scabies	6	04.00	18	12.00	6.52	0.01 *
Pyoderma	7	04.67	17	11.33	4.53	0.03 *
Fungal diseases	4	02.67	6	04.00	0.41	0.52

URTI = Upper respiratory tract infection; LRTI = Lower respiratory tract infection; LNE = Lymph Node enlargement; # Chi-square test with Mantel-Haenszel correction where applicable; * Statistically significant.

Table 4: Personal hygiene.

Parameter	NGO-run Open House (n = 150)		Street children (n = 150)		Chi^2 value#	p value
	Number	Percentage	Number	Percentage		
Bathes daily	94	62.67	77	51.33	3.93	0.047 *
Bathes occasionally	56	37.33	73	48.67		
Uses soap while bathing	132	88.00	110	73.33	10.34	0.001 *
Brushes teeth - daily	124	82.67	108	72.00	4.87	0.02 *
Brushes teeth - alternate days	26	17.33	42	28.00		
Washes clothes daily	94	62.67	76	50.67	4.4	0.036 *
Washes clothes occasionally	56	37.33	74	49.33		
Detergent for cloth washing	130	86.67	111	74.00	7.61	0.005 *
Washes hands before meals	94	62.67	88	58.67	0.503	0.478
Washes hands after meals	88	58.67	80	53.33	0.865	0.352
Washes hands after work	74	49.33	70	46.67	0.214	0.644
Municipal water supply	74	49.33	62	41.33	1.94	0.16
Untreated water supply	76	50.67	88	58.67		

Chi-square test with Mantel-Haenszel correction where applicable; * Statistically significant

Personal hygiene

Street children had a significantly lower frequency of bathing (p=0.047; OR=1.6), use of soap (p=0.001; OR=2.67), brushing teeth (p=0.02; OR=1.85), washing clothes (p=0.036; OR=1.63), use of detergent for washing clothes (p=0.005; OR-2.28), as compared to children from NGO-run open house. More than half of the respondents used untreated water at some point of time throughout the day (Table 4).

Social pathology

Children from NGO-run open house and street children mentioned that they were subjected to violence (frequent: 37.33% and 42.67%, occasional: 62.67% and 57.33%, respectively) but the difference between the two groups was not statistically significant (p=0.346).

30 (20%) of children from NGO-run open house and 28 (18.66%) revealed that they did not use any habit-forming substance.

Nearly three-fourths of respondents from both groups chewed tobacco regularly. Some were addicted to more than one substance.

Nearly half of the users revealed that they started using addictive substances due to peer pressure while others did so to alleviate depression (Table 5).

Table 5: Types of substances abused and reason for the same.

Parameter		NGO-run Open House (n = 120)		Street children (n = 122)		Chi^2 value #	p value
		Number	Percentage	Number	Percentage		
Types	Chewing tobacco	110	73.33	112	74.67	0.09	0.763
	Smoking tobacco	12	08.00	12	08.00		
	Alcohol	6	04.00	8	05.33	0.3	0.584
	"Ganja" †	20	13.33	18	12.00	0.121	0.728
	Glue sniffing	20	13.33	20	13.33	0	1
Reasons	Peer pressure	50	41.67	58	47.54	0.926	0.336
	Curiosity	42	35.00	40	32.79	0.067	0.795
	Depression	28	23.33	24	19.67	0.372	0.542

Some respondents used more than one substance; † Indian hemp or Cannabis; # Chi-square test with Mantel-Haenszel correction where applicable

DISCUSSION

In the present study, the respondents had left their homes to live on the street due to parental abuse, poverty, parental death, or peer pressure. A series of unfavourable factors, such as, migration, poverty, family dysfunction and child abuse results in street-based existence.[6,7]

This study found higher levels of anthropometric indicators (height, weight and BMI) among street

children, as compared to that of children from NGO-run open house. A study from Dhaka, Bangladesh comparable anthropometric measurements between street children and slum children, but the skin fold thickness of street children was significantly more.[8] The authors ascribed their findings to the likelihood of biologically fitter children moving to and remaining on the streets.

The frequencies of genital lesions, injuries, scabies and pyoderma were significantly higher in street children as compared to that in children from NGO-run open houses. A Dhaka-based comparative study on street and slum children reported higher prevalence of disease symptoms in street children.[8] A descriptive, cross-sectional study on street children in the twin cities of Rawalpindi and Islamabad reported prevalence of common ailments such as, injuries, respiratory and skin infections and their preference for self-medication because of long waiting time, financial constraints and self-perceived negative attitude of health care providers.[9] A Serbian study revealed that among the sexually active street children, a majority had multiple partners, 41.2% had had their first sexual intercourse by the age of twelve years and only a small number of respondents used a condom.[10] A Kolkata-based study has revealed sero-positivity rates of 1% and 4% for HIV and sexually transmitted infections, respectively, with 9% of 554 respondents reporting sexual abuse.[11] A study from Vancouver found that childhood maltreatment is associated with subsequent risk of suicidal behaviour.[12]

In this study, a majority of respondents from both groups were tobacco users while some were addicted to more than one substance and the common reasons for substance abuse were peer pressure and depression. A Jaipur-based study found that the common modes of entertainment and relaxation for street children were gambling, watching movies, and consuming tobacco, alcohol and drugs.[1] A community-based cross-sectional study on Kolkata city street children reported 30% prevalence of non-tobacco substance use and the factors associated with substance use were young age, lack of contact with family, orphan children, and night stay at public place.[11] Street children from resource-constrained settings reported high life-time substance use of inhalants, tobacco, alcohol and marijuana.[13] A random survey of homeless youth in Los Angeles reported dual use of smokeless tobacco by smokers and that 72% of respondents used smokeless tobacco products such as, chewing tobacco and moist snuff.[14] Domestic violence, a dictatorial father, presence of step-parents, migrant status and substance use in the family are among the identified risk factors for substance use.[15]

The limitations of this study were that questions were open-ended and the answers were based on the subjective perceptions of the respondents and it was not possible to verify the responses given by the respondents. Female children were not included in this study since it was difficult to ensure the presence of a female observer during interview and clinical examination by a male investigator.

CONCLUSION

Street children constitute a vulnerable, under-served group who need a gamut of social services, education and health care. Preventive efforts ought to focus on improving income levels and housing of impoverished families, curbing parental abuse, and providing educational and health care facilities, so that children are not forced on to the streets. For children who have already entered the street but are still in contact with their families, efforts should focus on establishing more number of drop-in open houses for providing food, health care and shelter, providing avenues for legal income, and educating on the hazards of promiscuity and substance abuse. Children who are not in contact with their families are difficult to tackle but they need rehabilitative services that are customised to their needs so that they do not indulge in delinquent activities and substance abuse.

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