Original Research Article

Assessment of Nutritional Status and Drug Abuse among Street Children of Dhaka City in Bangladesh: A Cross-sectional Study

ABSTRACT

Background: Street children are often deprived of the basic human rights in our society and hence they suffer from various forms of malnutrition and usually get addicted to different drugs. **Objective**: The current study aimed to assess the nutritional status and drug abuse of the street children of Dhaka city. **Methodology**: It was a descriptive cross-sectional study with randomly selected 100 street children (51 male and 49 female) aged three to fifteen years old from Dhaka city between the timeframe of January, 2016 to June, 2016. Data was collected by face-to-face interview with a pre-tested questionnaire involving their socio-economic data, nutritional status and information concerning drug abuse. Data analysis was conducted by IBM SPSS version 20.0, WHO Anthro and WHO Anthro Plus software. Various descriptive statistics like mean±SD, frequency, percentage along with binary logistic regression analysis was performed for the current study. **Results**: The respondents' mean age was 9±3 years. Majority of the street children (92%) knew about their mother's identity whereas about 35% of them did not know about their father's identity. Their monthly income ranged from one thousand BDT to three-thousand five hundred BDT. The study showed that about 47% of respondents were stunted, and nearly 58% were underweight. It was also found that about 82% of the respondents were drug abusers. However, about 45% were addicted to cigarette smoking and 24% were having marijuana in regular basis. Significant association was found between drug abuse and underweight status (AOR=1.27, p=.038) but no association was found between stunting rate and drug abuse of the respondents (AOR=1.03, p=.670). **Conclusion**: Appropriate measures ought to be taken to enhance the nutritional status and reducing the rate of drug abuse among this segment of our population to secure a productive and healthy adult life for them in the future. Further large scale research is recommended to explore the determinants of the nutritional status and their drug abuse in Dhaka City.

Keywords: Street Children, nutritional status, drug abuse, Dhaka city.

INTRODUCTION

It was stated that all human are equal in dignity and rights in the Universal Declaration of Human Rights (UDHR) [1]. But unfortunately, the truth is much bitter in practical life around us. Thousands of children are living in streets for their livelihood around us and the mass people are ignorant about their agony and sufferings. Many organizations and researchers have tried from their end to define the term "street children" [2-4]. According to UNESCO, street children are those children who have been separated from their families and have no other place to call home often end up living on the streets. These children spend their days on the streets, facing common risks like falling into the trap of drug abuse or engaging in prostitution. However, their presence in this environment also provides them with a feeling of liberation and independence [5].The classification of street children has been given by UNICEF and WHO. There are three types of street children according to UNICEF: children living in street alone, working on street for livelihood and living on the street with families. On the other hand, WHO classified street children into four classes.

Although many studies have been conducted regarding the nutritional status of other countries, very few studies have been undertaken regarding the nutritional status of the street children of Bangladesh [6-10]. Only one study was found to focus on the dietary adequacy of Dhaka city's children living on the street and few literatures were observed regarding their drug abuse [11-14]. Recently, Survey on Street Children 2022 has been undertaken by Bangladesh Bureau of Statistics (BBS) and UNICEF in Bangladesh [15]. Various parameters have been observed in the survey such as, socio-demographic information, coping strategy, living condition, health hazard etc. Although various aspects of their life have been observed in the survey but their nutritional status and their association with drug abuse were not considered in the survey. It was seen in a study by Hixon (1993) that malnutrition was correlated to drug abuse among street children [16]. Moreover, street children were reported to suffer from variety of ailments due to exposure to unhealthy conditions and adverse situations [17].

There are about 150 million street children around the globe, according to United Nations [18]. A report on Bangladesh said that number of street children in Bangladesh is rising at an alarming rate as the population of urban segment is growing by 9% per year [19]. Few studies have been conducted regarding the nutritional status of street children in Bangladesh. Moreover, few studies have been done focusing on drug abuse among the street children of Bangladesh. No study was found to assess the association between their nutritional status and drug abuse in the capital of Bangladesh. The current study tried to focus on revealing the association between these two variables. Hence, the study aimed to determine the nutritional status and drug abuse of the children living on streets of Dhaka and to assess the association between their drug abusing habits and nutritional status.

METHODOLOGY

Study design and study period

It was a descriptive cross-sectional study, conducted during the time frame of January, 2016 to June, 2016. It was a quantitative study in nature.

Study area

Respondents were selected from TSC area of Dhaka University campus, Ramna park and Suhrawardy Uddan in Dhaka city.

Sampling technique and sample size

About One hundred street children were randomly selected who were between the ages of 3-15 years old. In selecting the individual children, convenience sampling technique was employed.

Inclusion criteria

To include the subjects in the study, some inclusion criteria were used such as respondents had to be within the age range of 3 to 15 years of age and they were residing within the study area.

Data collection and analysis

Data was collected in a face-to-face approach with a pretested questionnaire regarding their socio-demographic status, anthropometric measurements, drug abuse, disease frequency etc. IBM SPSS 20.0 was used for statistical analysis along with MS Excel, WHO Anthro and WHO Antho Plus. To determine the nutritional status, the latter two software were used. Various descriptive statistics like mean±SD, frequency, percentage along with binary logistic regression analysis was performed for the current study.

RESULTS AND DISCUSSION

The results section has been divided into several parts: at first, socio-demographic information of the respondents, their nutritional status, their disease history in last three months, their drug abusing information and association between the drug abuse and their nutritional status. Table 1 depicts the respondents' socio-demographic information. About 51 respondents were male and 49 respondents were female. It was found that their mean age was 9±3 years. About 24% of them were 3-6 years of age, 22% was 7-9 years, about 24% children were 10-12 years and rest of the 30% was 13-15 years of age. It was seen that about 65% of them knew about their father's identity and about 92% knew about their mother's identity. In case of monthly income, it was observed that majority of their monthly income was 2500-3000 BDT. Only 13% respondents' income was 3500 BDT or above.

Table-1: Percent distribution of the socio-demographic characteristics of the respondents (N=100).

Variable		Frequency	percentage
Sex	**Male**	51	51
	Female	49	49
Age (in year)	**3-6**	24	24
	7-9	22	22
	10-12	24	24
	13-15	30	30
Know about father's identity	**Yes**	65	65
	No	35	35
Know about Mother's identity	**Yes**	92	92
	No	8	8
Monthly individual income (in BDT)	**<1000**	8	8
	1000-1500	14	14
	1500-2000	17	17
	2000-2500	15	15
	2500-3000	22	22
	3000-3500	11	11
	≥ 3500	13	13

Figure-2 exhibits the nutritional status of the street children. It can be observed that about 47% of the street children were stunted and rest of them were found in normal status according to the standard cut-off for HAZ. Moreover, 58% of children were found to be underweight according to standard cut-off for BAZ. Hakim and Kamruzzaman (2015) found that about 66.67% of street children in Tangail city were underweight and 33.3 % were in normal status. Another study by Talukder et al (2015) showed that about underweight prevalence was 61.7% and normal status prevalence was 38.3%. Similar study was conducted by Hakim and Rahman in 2015 and they found that about 65% of the respondents were underweight and the rest of them were healthy. This research was done upon Tejgaon area's eighty street children.

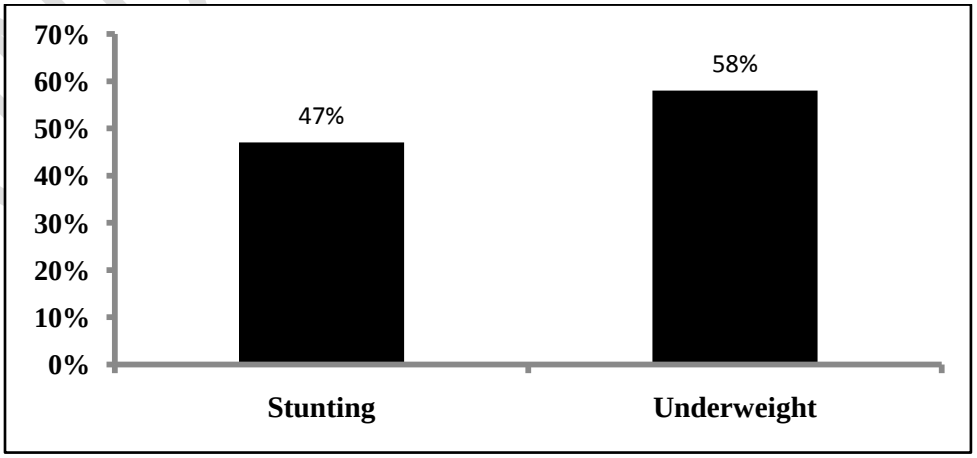

Figure 1: Respondents by their nutritional status (n=100)

Table-2 shows the respondents' daily frequency of the meal taken. It was observed that about 18% were found to have two meals per day. Majority of the respondents had three meals a day. About 11% had four meals and only 4% were found to have over four meals per day. Some studies also observed the number of meals taken among the street children of Bangladesh. Hakim and Kamruzzaman (2015) found that about 85.5% had 2 meals and 14.5% had 3 meals per day. Similar findings were also observed in the study by Talukder et al (2015). They showed that 87.5% had three meals and the rest of the 12.5% had two meals per day. On the other hand, Hakim and Rahman (2015) showed that about 78% took 3 meals and 22% of the respondents had two meals per day in the Tejgaon area of Dhaka city in Bangladesh.

Table-2: Percent distribution of the respondents by their daily frequency of meal taken

Number of meals perday	Frequency	Percentage
Twice	18	18.0
Thrice	67	67.0
Fourth	11	11.0
More than four time	4	4.0
Total	100	100

Figure 2a shows majority of respondents (82%) suffered from different diseases during three months prior to the study and 18% of respondent were found to have no diseases. A study by Hakim and Kamruzzaman (2015) found that 60% of their respondents in Tangail city suffered from various diseases in last 3 months prior to study and similar findings were observed in the study by Talukder et al (2015) which was 60.8%, and Hakim and Rahman (2015) which was 61.3%. However, a study by Lawrence et al (2007) showed that disease symptoms were found higher among the street children than that of slum children. Chowdhury et al (2017) found that among 125 street children in Dhaka city, about 87.2% were suffering from various diseases. Figure 2b shows the types of diseases occurred in the last three months prior to study by the respondents of the current study. It can be seen from the figure below that about 52.5% had fever, about 10.6% from diarrhea, 28.2% from dysentery, about 4.5% from skin diseases and 4.2% from other types of diseases.

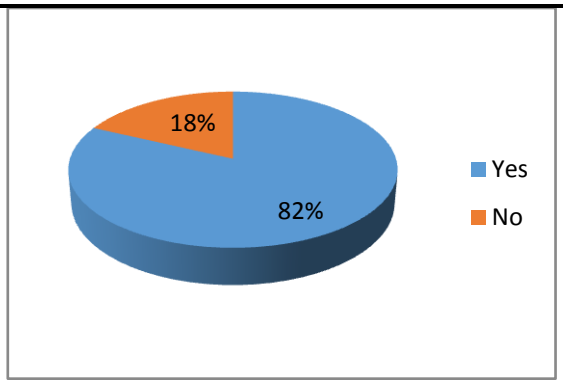

Figure-2a: Percentage of disease occurring during the last three months

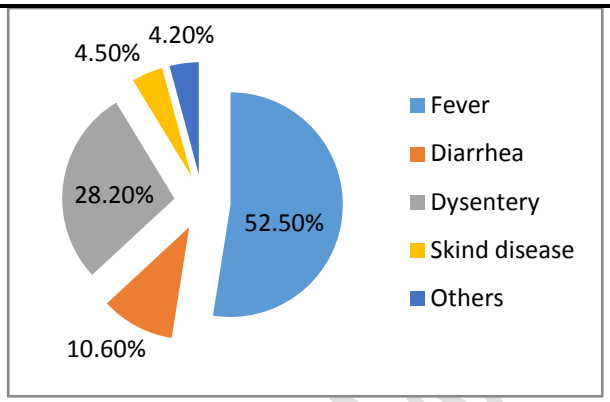

Figure-2b: Types of disease occurring among street children during last three month

Figure 3a depicts that about 82% of street children were found with drug abusing habits. Among them, about 24% had taken marijuana, about 45% had taken cigarettes regularly, about 15% were found to take sniffing drugs and the rest of the 16% were found to have other types of drugs. Some studies also showed the drug abusing habits of street children of Bangladesh. A study by Bhuiyan et al (2018) showed that about 87.5% of respondents' drug abuse started with sniffing adhesives. Another study by Hasan et al (2020) found that about 59.2% street children of Khulna city were found with a severe level of drug addiction. About 62.5% were found to take Dandy and 18.3% were found to have marijuana. A study by Sarker (2017) showed that about 92.8% of the respondents of the study were taking glue sniffing regularly. Another study conducted in 2015 by Hossain and Ahmed showed that 53% street children were found with drug abusing habits.

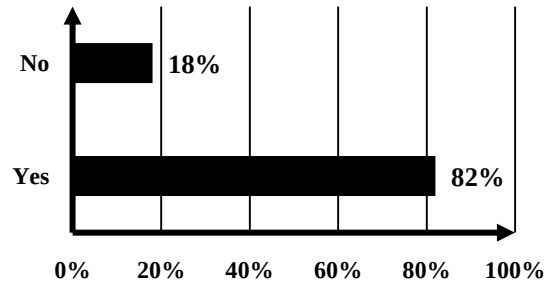

Figure-3a: Percentage distribution of respondents by their drug abuse

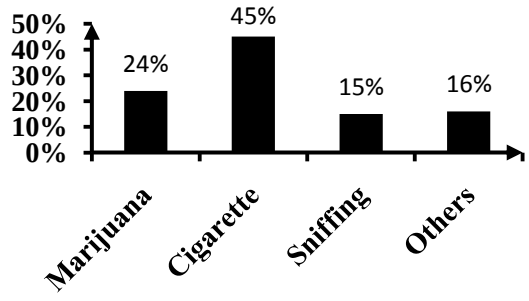

Figure-3b: Percentage distribution of respondents by different types of drugs they use

Table 3 shows the respondents' association between the nutritional status and their drug abuse. Binary logistic regression analysis was conducted and was adjusted for background demographic variables such as sex, age, mothers' identity, fathers' identity, and monthly income. It was seen that stunting was not

associated with drug abuse (AOR=1.03, p=.670). On the other hand, underweight status was found to be associated with drug abuse (AOR=1.27, p=.038).

Table 3: Nutritional status and drug abuse among the respondents

Nutritional Status		Drug abuse[a]		p-value[b]
		AOR	95% CI	
Stunting	Yes	1.03	0.91-1.15	.670
	No	*reference*		
Underweight	Yes	1.27	0.82-1.48	.038[c]
	No	*reference*		

N.B.: [a]Those who were not addicted to drugs were held as reference group, [b]p-value was obtained from Binary logistic regression analysis, [c]statistically significant

Other studies conducted among street children of Bangladesh did not show the relation between the nutritional status and drug abuse. On the other hand, the current study tried to put some light on this dimension of drug abuse and found some association as discussed above. More extensive research is recommended by the authors to find out the causal effect of this variable with the nutritional status of this vulnerable group in our society.

CONCLUSION

Summarizing the above findings, it was seen that the respondents' mean age was 9±3 years. Majority of the street children (92%) knew about their mother's identity whereas about 35% of them did not know about their father's identity. Their monthly income ranged from one thousand BDT to three-thousand five hundred BDT. The study showed that about 47% of respondents were stunted, and nearly 58% were underweight. It was also found that about 82% of the respondents were drug abusers. However, about 45% were addicted to cigarette smoking and 24% were having marijuana in regular basis. Significant association was found between drug abuse and underweight status (AOR=1.27, p=.038) but no association was found between stunting rate and drug abuse of the respondents (AOR=1.03, p=.670). Based on the findings, it might be recommended that appropriate measures ought to be taken to enhance the nutritional status and reducing the rate of drug abuse among this segment of our population to secure a productive and healthy adult life for them in the future. Further large scale research is recommended to explore the determinants of the nutritional status and their drug abuse in Dhaka City.

CONSENT AND ETHICAL APPROVAL

Informed consent was taken from each respondent. Respondents whose guardian was available at the study site, consent was also taken from them. It was made clear to them that, their data will be used solely for research purpose and will be kept confidential. Ethical approval of the study was obtained from the Ethical Review Board of the Faculty of Biological Sciences, University of Dhaka.

Acknowledgement

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Conflict of Interest

No conflict of interest exists among the authors.

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COMPETING INTERESTS

Authors have declared that they have no known competing financial interests OR non-financial interests OR personal relationships that could have appeared to influence the work reported in this paper.

REFERENCES

1. United Nations, 2015. Universal Declaration of Human Rights (UDHR).
2. Dallape, F. (1989). Street Children in Africa, Paper presented at the symposium on Street Children in the Third World, Carita Neerlandica and the Working Group on Development Studies, University of Amsterdam.
3. Cosgrove JG. Towards a working definition of street children. International Social Work. 1990 Apr;33(2):185-92.
4. Lugalla JL, Mbwambo JK. Street children and street life in urban Tanzania: The culture of surviving and its implications for children's health. International journal of urban and regional research. 1999 Jun;23(2):329-44.
5. Definitions and classifications of street children. Available at: https://ebrary.net/217596/education/definitions_classifications_street_children. Accessed at: June 26, 2023.
6. Hakim MA, Kamruzzaman M. Nutritional status of central Bangladesh street children. American Journal of Food Science and Nutrition Research. 2015;2(5):133-7.
7. Talukder MU, Alam MM, Islam MA, Paul GK, Islam MT, Akther F. Study on the nutritional status of the street children at Shabagh Area of Dhaka City. International Journal of Nutrition and Food Sciences. 2015;4(3):240-5.
8. Greksa LP, Rie N, Islam AR, Maki U, Omori K. Growth and health status of street children in Dhaka, Bangladesh. American journal of human biology. 2007 Jan;19(1):51-60.
9. Hakim MA, Rahman A. Health and nutritional condition of street children of Dhaka city: an empirical study in Bangladesh. Science Journal of Public Health. 2016;4(1-1):6-9.

10. Chowdhury S, Chowdhury AS, Huq KE, Jahan Y, Chowdhury R, Ahmed T, Rahman MM. Life style and risk behavior of street children in Bangladesh: A health perspective. Health. 2017;9(04):577.
11. Masud JH, Khan MM. Pattern of drug abuse among street children of dhaka: Inhalants are the most popular drug. Delta Medical College Journal. 2018 Mar 10;6(1):29-34.
12. Hasan K, Khan MA, Sujon SM, Kabir KH, Habiba U. Loops Surrounding Street Children's Drug Addiction in South-Western Urban Bangladesh: Evidences from Khulna City. Int. J. Bus. Soc. Sci. Res. 2020;8(1):53-8.
13. Sarker MJ, Al Marjuk O, Alam M. Drug Addiction among Street Children: A Case Study of Dhaka City.
14. Hossain MI, Ahmed Z. Social Bonding and Drug Addiction: A Study on the Street Children in Dhaka City. ASA University Review. 2015 Jul 1;9(2).
15. Bangladesh Bureau of Statistics (BBS) and UNICEF (2022). Survey on street children living in street situations- Survey Findings Report.
16. Hixon AL. Social correlates of malnutrition among Filipino street children. Connecticut Medicine. 1993 Jun 1;57(6):373-6.
17. Jesmin, E. (2004). Health and Living condition of Street Children in Dhaka City. Poverty and Health, ICCDR, B.
18. Street Children. Available at: https://theirworld.org/resources/street-children/#:~:text=The%20United%20Nations%20estimates%20there,vulnerable%20to%20exploitation%20and%20violence. Accessed at: June 26. 2023.
19. Appropriate Resources for Improving Street Children Environment (ARISE), Shamanic; Child Right, week-2004, October 5, 2004.