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Malnutrition Prevalence and Health Practices of Homeless Children: A Cross-Sectional Study in Bangladesh

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Abstract: This cross-sectional study was conducted in a central statistical subdivision (i.e. Tangail district) in Bangladesh. A sample of 240 homeless children was collected from 12 different locations in the study area during the period from November 2014 to July 2015 by using a structured questionnaire and the simple random sampling method. The anthropometric measurements and background data were collected from these children. Analyses reveal that male children are significantly high in homelessness situation (85%). Nearly two-third of the homeless children were malnourished including about 60.42% were underweight and 6.25% were overweight conditions. Findings also demonstrate that about 63.75% children were able to manage their foods three times in a day and the rest 36.25% were able to manage twice or once meal in a day. Most of the study children (80%) regularly washed their hand before taking a meal and 57.5% taken bath in a daily basis, and about 61.5% of them have been suffered by diseases within the last 3 months prior to conducting the study. Moreover, about 38.33% children were in workforce while 61.67% were purely work abstainers.

Keywords: Malnutrition, Nutrition and Health, Homeless Children, Cross-Sectional Study, Bangladesh

1. Introduction

Each year about 13 million infants and children die in developing countries and most of these deaths can be related to malnutrition.[1] Malnutrition is the biggest single contributor to child mortality in the developing countries.[2,3] About four of each five malnourished children live in South East-Asia (SEA) region and it is now recognized that nearly 83 percent of child deaths are attributable to mild to moderate malnutrition.[4,5] Childhood malnutrition leads to stunted growth and increased morbidity and mortality and it also decreases the survival chances of adults later in life[1,6] and Psychological and intellectual development[7,8]. In developing countries like Bangladesh, the most important socio-economic constrains in achieving proper nutrition is poverty[1,3,9]. Malnutrition, as elsewhere in developing world, results from convergence of 'poverty', household food insecurity, ignorance, population pressure, lack of health service facilities compounded with cultural taboos and natural and manmade disasters[1-5,8]. The major etiological factors contributing to protein calorie malnutrition in different countries of South–East Asia are similar and may be considered to fall under the following heads: 1) Lack of calories and protein rich food for the feeding of infants and children due to socio-economic and agronomical factors. 2) Faulty-feeding habits arising from ignorance prejudices and superstitions. 3) Poor environmental condition leading to superimposition of additional stress in the natures of infections and infestations. There are few studies on the prevalence of different levels of malnutrition and the risk factors in abroad & Bangladesh[1-5&10-12] but no study has been conducted with a specifically focus on homeless children.

The homeless or street children can be defined as those who adopt the streets life by no choice at renowned or backward cities to earn their livelihood and habitual abode adorning into a nomadic life[13]. There is no true concept of "homeless children" and so a greater bulk of health and nutritional professionals and policymakers are in galore consideration to use the UNICEF model of homeless, care free and unsecured boys and girls aged less than 18 years to dwell on the streets to call the homeless children[14]. The homeless children are a part

of socially disadvantaged children in developed nations possibly to come from single-parent families[15]. These fellow children are often subject to abuse, neglect, exploitation, or extreme cases, murder by clean-up squad hired by businessmen, criminal gang and very often the police to retain their huge business gaining[16-18]. They are often involving in different illegitimate actions such as drug dealing, crime, theft, swindling and gang activities for their deprivation on culture, moral, tradition, shelter, income, social networking, health, nutrition, hygiene cares and religious rights due to living away from families since their childhood[19]and however, a bigger portion of them is legal life supporting works doers such as parking car washing, baggage loading, show polishing etc. according to the basis of cultural deviations worldwide.

According to the UNICEF homeless children can be classified into three groups: i) homeless living children (kids ran away from their families and live alone on the homeless); ii) homeless working children (kids to spend most of their day time on the homeless fending for themselves, but returns home on a regular basis); and iii) homeless family children (kids living on the homeless with their families)[20].

Children leave the home to move to the streets by dint of poverty, intra-family feud and alluring the modernity facing obstacles in continuation on these trends in families' structures and therefore broken families and child abuse seen frequently[21, 22].

The homeless children are on the rising trend and increasing day by day, and they may reach 800 million if apt initiatives delayed to surmount the existing perils in this connection[23].There are 63% of them going to bed hungry and 53% are chronic malnutrition sufferers, 27 million are severely underweight and 33 million are not in school entry at all[13]. In 1990, the government assumed that there are about 1.8 million children on the homeless in Bangladesh, about 215, 000 including 1, 00000 girls are thought to be in Dhaka City alone and 12 years later, there are probably 7 million children on Bangladeshi homeless and most of them to work in charge of car cleaners, beggars, vendors, newspaper sellers, garages helpers, rag pickers etc[24].

According to a report from Consortium for Homeless Children, a United Kingdom based consortium of related Non Government Organizations, UNICEF estimated that 100 million children were growing up on urban homeless around the world. Fourteen years later, in 2002, UNICEF similarly reported, "The latest estimates put the numbers of these children as high as 100 million"[25].

These homeless and malnourished children are the sufferers of different diseases[18,26,27] due to of seasonal variations and some are chronic health disorders sufferers according to their dwelling topographic variations varying country to country. About 73% of homeless children in Dhaka city suffer from chronic malnutrition while mortality and morbidity status among homeless dwellers has reached an alarming level for lack of basic health and nutritional care services[28]. A range of social, demographic and community factors have significant impacts on childhood malnutrition[29-33].

In this research, we evaluate the malnutrition prevalence of the homeless children located in a central statistical subdivision of Bangladesh and then explore their health practices behaviours. The specific aim is to assess the malnutrition status and its significant links with their socio-demographic settings.

The plan of the study is as below. The data and methods section provide reports on the data collection process and data analysis. The next section presents significant results for this research. Discussion section highlights major findings of this research. The conclusion section provides the final overview with limitations and indications of future research.

2. Data and Methods

This is a cross-sectional study. A central statistical subdivision known as the Tangail district located within the Dhaka division in Bangladesh is our study area. A range of small towns having a police station such as Tangail Sadar, Sakhipur, Basail, Madhupur, Ghatail, Kalihati, Nagarpur, Mirzapur, Gopalpur, Delduar, Bhuapur and Dhanbari upazilas were selected for the study. The simple random sampling method was applied to take the boys and girls for the data collection. A planned questionnaire was developed inserting both the closed and open ended query to collect data through face-to-face interview with the respondents. The questionnaire was pretested in areas far away from the sample areas and revised according to the feedback gained in the field level. The questionnaire was formed to achieve the relevant information considering personal, household, social and economic details, dietary patterns, general behaviors, leisure period activities, drug addiction and abuse, anthropometric assessments and interrelation between different variables. For the ethical consideration, the purpose and objective of the study were narrated at the outset of the study starting to the respondents to take the verbal consent to conduct the self funding study.

The anthropometric measurements were collected using the standard procedures listed below:

Weight:The body weight was recorded using the standard weighing machine keeping the respondent bare footed with minimal cloths and after bladder emptying.

Height:The height was recorded using modified tape keeping the respondent stranded on a platform, bare footed with their head upright, looking straight forward.

Body Mass Index (BMI): The nutritional grading of the respondents was assessed using widespread BMI measuring equation in nutritional point of view.

The study was conducted from November 2014 to July 2015. For verification purposes the questionnaire was checked per day taking the interview and again these were carefully rechecked after collecting all the data and coded prior the entrancing into computer. The data was edited in case of sighting discrepancy (doubt entry, wrong entry etc.). A total of 240 homeless children data were collected and then processed to undertake statistical analysis using SPSS 17 windows program. The MS Word and Excel were used to represent the tabular, charts and graphical representation.

3. Results

This section highlights the results of the study.

The socio-demographic characteristics of homeless children are presented in table 1. Data show that about 32.5% were within 6 to 11 years of age and 67.5% were within 12 to 16 years of age. Almost 85% children were boys and nearly 81.3% children have more than 3 family members.

Table 1. Socio-demographic characteristics of homeless children.

Grouping	Frequency	Percentage
Sex		
Boys	204	85
Gamines	36	15
Ages (years)		
6 to 11	78	32.5
12 to 16	162	67.5
Family members		
< 3	45	18.75
3 to 5	112	46.67
6 to 8	83	34.58

The data in table 2 reveals that about 35% respondent earned BDT 1000 to 1500 and 10.42% were BDT <1000 earners. The highest 63.75% of children were able to eat three times in a day and the rest 36.25% of children were able to eat only twice in a daily basis.

Table 2. Distribution of children by monthly income and meals frequency.

Grouping	Respondents (%)
Monthly income (BDT)	
>2000	26.25
1501 to 2000	28.33
1000 to 1500	35.00
<1000	10.42
Daily meal eaten frequency	
3 times/day	63.75
2 times/day	36.25

Table 3 offers the hygiene practices and diseases experiences of the study children.Estimates reveal that about 57.5% respondents were able to take bath on a daily basis, nearly 61.5% of children suffered from diseases in last 3 months and almost 80% of children used to wash their hand before eating as an ordinary hygiene practice of the country.

Table 3. Hygiene practices and diseases experiences.

Patterns	Respondents (%)
Hand washing before eating	
Yes	80
No	20
Daily bath taken	
Yes	57.5
No	40.5
Suffering from diseases in last 3 months	
Yes	61.5
No	38.5

Figure 1 depicts the malnutrition status of the study children by using the BMI index. Results clearly indicate that about two-third of the homeless children (i.e. about 66.7%) were in malnourished condition among them 60.4% were underweight
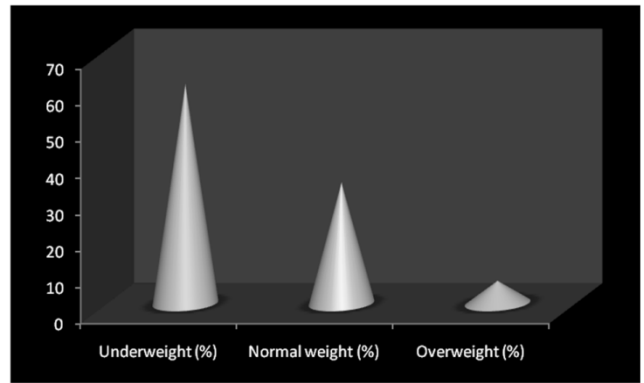
and 6.3% were overweight.

Figure 1. Nutritional status of homeless children on the BMI basis.

Table 4 indicates that there was a positive association ($r = +0.41$) between the nutritional status and educational level of respondents. Data shows that an improved education level effects positively to the better health status.

Table 4. Distribution of children by nutritional grading and education level.

Nutritional grading	Education level	
	Illiterate (n)	Up to the PSC (n)
Underweight	99	46
Overweight	5	10
Normal weight	17	63
Correlation coefficient $r = + 0.41$		

Table 5 presented that about 38.33% respondents were involved in different working gesture (street hawkers, garbage pickers, buss helpers, car washers, shoe polishers etc.) and on the other hand the rest 61.67% of them were not involved in any type of works.

Table 5. Working dimensions of the respondents.

Dimensions	Respondents (%)
Day labors	
Street hawkers	8.33
Buss helpers	7.08
Garbage pickers	6.25
Car washers	5
Shoe polishers	4.17
Others	7.5

4. Discussion

The study was piloted at one of the central statistical subdivision i.e. Tangail district in Bangladesh which has about 3.6 million populations on the area of 3414.35 km^2. The population density in area is almost 1,100/km^{2}[34]. This area is chosen for the study in order to make the reporting of malnutrition status of homeless children as a central body of the state to support the ultimate nutritional assessment of Bangladeshi homeless children as a whole to aid taking intervention to upgrade their ongoing nutritional status assisting different socio- economic and demographic contours[3,5,35,36]. The government needs to take solvable bid to shirk the malnutrition magnitude in association with the social

status and homelessness. Children have some basic rights including foods, shelters, healthcare and education. So it is the society's responsibility to ensure an adequate healthcare and nutritional soundness to all the rural and urban children as well as population irrespective of cast, creed, income, gender and religion. The education level of the children is desired to improve since the findings show that higher level of education has positive effects on better health status. The huge percentage of homeless children was found to be the malnutrition gainers by dint of lacked access to safe drinking water, inadequate nutritious foods, lack of hygiene practices and shelter. These findings are consistent with the results of few studies conducted in various countries[37, 38]. Malnutrition status reflects possible choice to assure physiological needs driving away multidimensional existing horrors in the society to form poverty and social burden in the country. The nutrients consuming in the body to support the growth and development, health and nutritional care and physical and mental activities and help to prevent diseases[17,26,29,39]. If the nutrients deficiencies and excessiveness exists for long time, they results in interference with body functioning and increasing the occurrence of diseases[1-3,40]. The government should introduce national child protection system monitoring the children's rights abuse keeping them from going back to the homeless through various programs like education[32], drug detoxification programs and providing a safe family-like environment. To introduce any significant policy, the government and non-government national and international organisations need to evaluate the current policies and possible implications of new policy. However, evaluation of policy is not very easy tasks. The spatial microsimulation modeling [41-45] can be useful in this case to design effective policies and see any governments and non-governments organisations, environmental and spatial effects across different countries [46-50]. These tools are frequently used in most of the developed countries.

5. Conclusion

Malnutrition is one of the significant public health concerns in developing countries and the gravest single threat to global public health and the foremost child mortality. The current study findings revealed that malnutrition problem is on multi-dimensional helm having linkages to social, economic and demographic conditions. The homeless children are at high risk for childhood malnutrition due to a number of factors. The homeless children are in physical, mental, social and spiritual health perils and they are at bay off different social and psychological violence and abuse. Although a range of organisation is working cooperatively to reduce homeless children and their malnutrition trend, the support is not enough. The proper education stands out as a very significant influencing factor for reducing malnutrition prevalence in the homeless children. So the national and international policy makers should focus on this factor to make sure that homeless children should have good educational access and foods and hygiene practices. Future research should extend this pilot

study at the national and international levels and investigate about other significant factors which may have direct and confounding effects of homelessness and childhood malnutrition. Microsimulation modelling techniques should be also explored in a further study for the policy design, analysis and checking any spatial or regional effects for childhood malnutrition and developments.

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