

Livelihood and Food Security Status of Squatter and Street-side Dwellers of Dhaka City

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Abstract

The objective of this study was to identify the livelihoods and food security conditions of the people migrating from rural to urban squatters and street sides of Dhaka City. The study was cross-sectional. Socio-demographic, economic, food security and livelihoods data were collected. Food security was assessed by Food Access Survey Tool (FAST) and Coping Strategy Index (CSI) method. A total of 340 households from squatter (n=209) and street-side dwellers (n=131) were selected using the convenience sampling method. A Student t-test and a Chi-square test were used to detect group differences between the squatter and street-side dwellers. Almost all households were food insecure in both settlements while about half of the street households and one-fourth of the squatter households were severely food insecure. About half of the families borrowed food from neighbours/relatives or substituted wheat or another grain for rice. In squatter households, monthly income was slightly higher than the street households, but they both spend around 58%-62% of their income on food. About 73% of the street parents and 50% of the squatter parents were illiterate. The majority of squatter households had tin walls constructed on soil (51.7%) or a semi-concrete floor (45.9%) while street households were living in portable shanties/Jhupri (50.4%) or non-government organization (NGO) centres (20.6%), with limited access to power and cooking facilities. In both settings, most households used iodized salt and open-packaged oil for cooking. However, over 60% of the households in both settlements had at least one smoker while 19% of the street households had at least one drug-addicted person. Study findings indicate that both squatters and street-side dwellers are suffering from a severe form of food insecurity and maintaining a low standard of living. Immediate attention is required to improve food insecurity either through financial assistance, skill training, or small-scale business opportunities.

Keywords: Livelihood, Food security, Squatter, Street, Slum, Dhaka, Bangladesh

Introduction

The deteriorating situations in villages following rapid urbanization in Bangladesh lead the impoverished people to migrate to metropolitans like the capital city Dhaka^{1,2}. The migrating people are starting to live in the slums of urban areas in Dhaka³. Dhaka is having the highest number of slums in Bangladesh. According to the census of slum areas and floating population, in 2014, around 10,62,000 people are living in Dhaka slum which is about 48% of the slum population in Bangladesh⁴. Three types of residences particularly incorporate slum housing: slums, squatters and street settlements. A squatter settlement is a residential area illegally occupied by landless people in an urban zone whereas a slum has legal and physical characteristics with limited access to safe water and sanitation, insecure residential structure,

and overcrowding. On the other hand, street dwellers usually put up their accommodations along footpaths or pavements using discarded clothes, cardboard, corrugated iron, and plastic⁵. Families from rural and remote areas across the country who suffer from poor economic conditions migrate to the cities to obtain a better standard of living. Despite getting inadequate access to basic living standards, people are migrating to urban areas and living in the slum, squatters and street settlements because of higher income probability, easy access to the informal economy and positive information of the city^{3,6,7}.

A livelihood assessment can provide information on every prospect of human life, encompassing the level of need, overall welfare, and the most vulnerable groups of this deprived community⁸. Livelihood security refers to the household's ability to meet its

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basic needs to sustain their life, e.g., adequate food, accommodation, minimal income levels, health, primary education, and community participation^{9,10}. Among urban squatter and street dwellers, the main determinants of livelihood assessment at the household level are prices and income, access to home production, and access to formal and informal transfers^{10,11}. Studies suggested that a significant portion of the slum population is dependent on daily-wage temporary jobs where earnings are both low and irregular, and every so often pay more for goods and services and spend more than half of their budget on food^{2,12}. Therefore, access to an income is crucial for household sustenance and welfare; accordingly, the urban poor's food security relies heavily on their livelihoods.

Additionally, food insecurity is a situation of insufficiency in the quantity and quality of food¹³. Household food insecurity is found to be associated with a lessened household supply, decreased dietary intake, and health complications^{14,15}. Despite providing a ton of attention to address the urban poverty by the various national and international lending and funding organizations¹⁶, there are limited studies focusing on the livelihood and food security of squatter and street dwellers. Also, the degree and span of coping strategies employed by the urban poor due to the food crisis is not understood properly. Because of poor attention, the severity of food insecurity and the extent of suffering might get worsen the street and squatter occupiers of Dhaka city. This study examined the overall livelihood status and the food security situation, and household coping strategies of Dhaka city's squatter and street-side dwellers. Additionally, the study explored the intentions of the squatter and street-side dwellers toward a better life by specifying features like program involvement, behavioural aspects, and external assistance.

Methodology

Settings

The study was conducted in the Dhaka metropolitan area, consisting of households residing in designated urban squatter and street settlements. We selected different zones of Dhaka city corporation, *Mirpur* and *Mohammadpur* for squatter settlements and *Gaboli*, *Komlapur*, *Mouchak*, *Sadarghat*, *Gulistan*, *Mirpur*, *Polton* for homeless people (Figure 1). These are the public area but informally occupied by slum people for more than 25 years. The living conditions are substandard in these street settlements and squatter colonies¹. *Gaboli*, *Komlapur*, and *Sadarghat* are three crucial areas, especially for street dwellers. These are the three major entry points in Dhaka city with the largest bus station (*Gaboli*), only train station (*Komlapur*), and a single river station (*Sadarghat*)⁴. The embankment of the river named Buri Ganga in Sadarghat is government-owned land, while the street occupants adjoining the embankment are placed on privately owned land.

Study design and sampling

It was a cross-sectional study, and the sample size was calculated using standard statistical formulae at the outset of the study. The sample size of 340 was determined based on the estimated prevalence of chronic malnutrition, the desired 95% level of confidence, and the acceptable margin of error. According to a recent report, the prevalence of stunting in slum areas below five years of children is 68%¹². Followed by the convenience sampling approach, a total of 340 mothers and households (mother-child dyad) were selected from the street, and squatter dwellers, and the sample size was sufficient for the significant test and to perform advance analysis. The study data were collected from April to July of 2013.

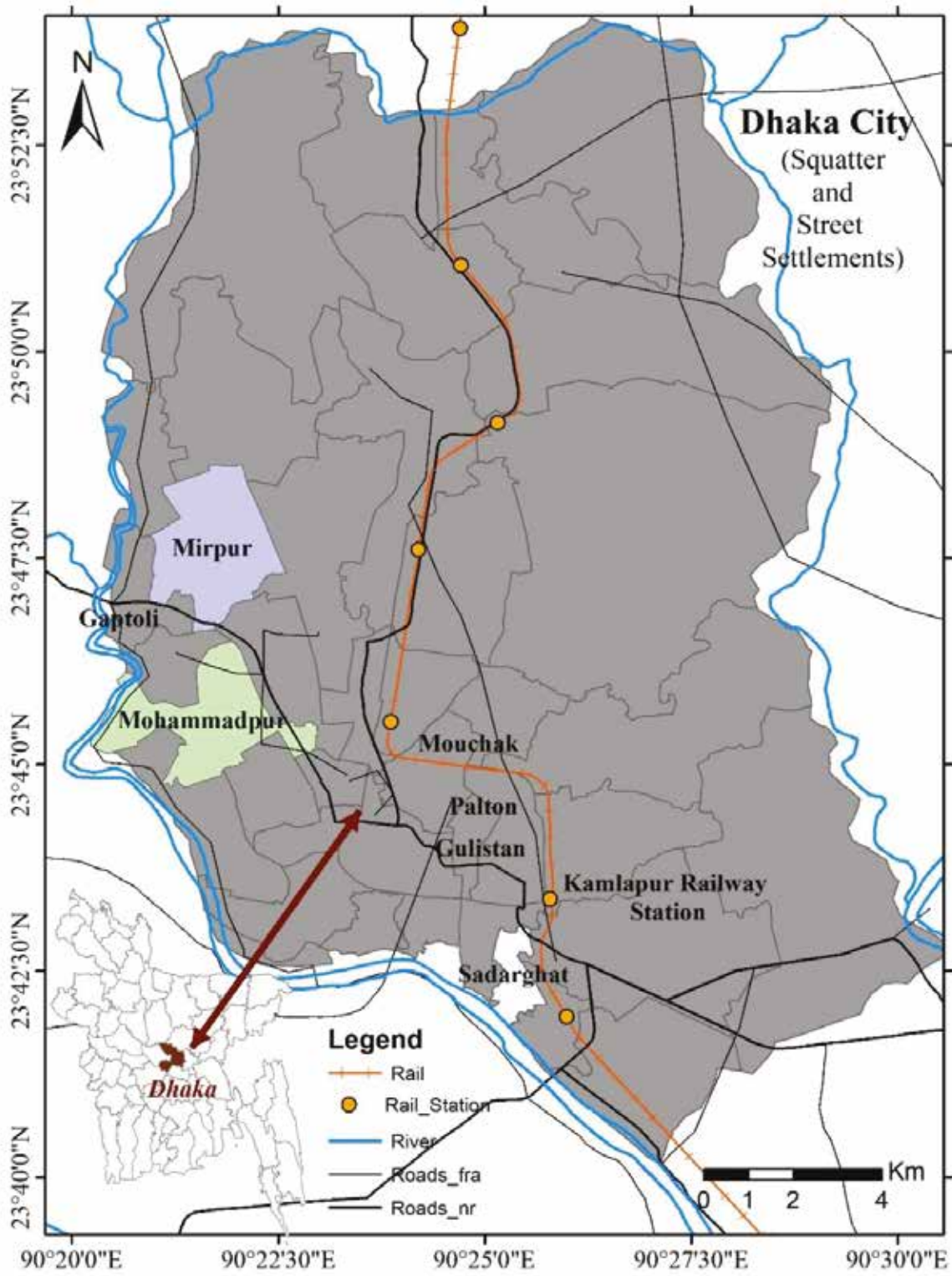


Figure 1. Study locations

To meet the study objectives, women meeting the selection criteria and providing the necessary information were considered respondents. Mother was eligible if she lived in squatter or street settlements for at least two years and with under-five children.

Data on household characteristics and members were collected from the eligible mothers through face-to-face interviews. A questionnaire was developed to obtain relevant information on livelihood and food security. Before carrying out the study, the questionnaire was modified after pilot testing. In addition, to boost the response rate and increase the availability of rich and reliable interview data, initial visits were used to create rapport and trust with the attendees before data collection.

Measures

Data is collected on socio-demographic factors such as education, means of livelihood, and types of housing. Detailed information on household expenditures and savings, income from occupation and other sources, purchases and sales, and food stocks was collected in this study. The occupation of the mother and father was classified into six categories¹². Income and expenditure were defined into five categories (BDT <4000, BDT 4000-5999, BDT 6000-7999, BDT 8000-9999, BDT ≥10000). We categorized the parent's education into four categories: illiterate, primary, secondary, and SSC & above. Dwelling types for living and types of fuel used for cooking were collected from the study participant, along with the type of oil and salt used for cooking in the household. Also, information on access to safe water sources and sanitation facilities for households was taken. We collected smoking and drug-addicted behavioural information.

Food security was assessed by Food Access Survey Tool (FAST) method¹⁷. Food security questions were asked to the mothers, and we tried to assess the perception of hunger, food access, food shortage, and regularity of meals. We collected information on the types of assistance expected by the respondent and the

following activities if the respondent gets money as assistance. The coping strategy was assessed through interviews with mothers questioning food access and the regularity of meals in the previous seven days. The coping strategy was gauged by the FAST-Coping Strategy Index process^{17,18}.

Statistical analysis

Descriptive statistics were performed in this study for estimating the mean, percentage, and frequency of the demographic and socioeconomic characteristics. The percentage of the income spent on the food was calculated. Statistical comparisons were made across these two settlements (squatter vs. street) for reported socioeconomic and demographic variables. Because of the high prevalence of food insecurity among the study groups, risk factor analysis (multivariate analysis) was not conducted. Rather, student t-tests and chi-square tests were used to detect group differences. The significance level (*p*-value threshold) for this study was 0.05. Data were analyzed to produce descriptive statistics and inferential statistics using SPSS V16.

Ethical approval

To meet the study's objectives, eligible women who were able to provide necessary information were considered respondents. Before participating, all subjects read (or listened to) a participant information leaflet and provided written informed consent.

Results

The average household size was almost similar between squatter and street settlements (4.44 vs. 4.51), and most of the families were father-headed; however, a quarter of the households of the street-side were mother headed. The earner-dependency ratio was high among pavement dwellers than squatter settlements (1.20 vs. 0.94). Unskilled and dependent self-employment occupations were predominant among the fathers in both squatter and street, whereas most mothers were doing paid work and unpaid family work (Table 1).

Table 1. Demographic and socio-economic characteristics of households by squatter and street settlements

Variable	Overall, n=340 (%)	Squatter, n=209 (%)	Street, n=131 (%)	P-value
Household size, (mean)	4.46	4.44	4.51	0.609
Earner/dependency ratio, (mean)	1.04	0.94	1.20	<0001*
Household type, (%)				
Father headed	82.9	89.0	73.3	
Mother headed	14.7	7.2	26.7	
Father's occupational category, (%)				
Regular waged	11.6	14.6	6.3	<0.001 *
Skilled worker	11.0	15.6	2.7	
Unskilled worker	31.0	31.2	30.6	
Dependent self - employment	28.7	24.1	36.9	
Self-business	12.3	10.1	16.2	
Unpaid family worker	5.5	4.5	7.2	
Mother's occupational category, (%)				
Regular waged	40.9	44.5	35.1	0.478
Skilled worker	1.2	1.4	0.8	
Unskilled worker	7.4	1.9	16.0	
Dependent self - employment	4.4	0.5	10.7	
Self-business	6.5	1.0	15.3	
Unpaid family worker	39.7	50.7	22.1	
Education				
	Squatter		Street	
	Mother (%)	Father (%)	Mother (%)	Father (%)
Illiterate	47.4	51.2	73.3	72.0
Primary (I -V)	37.3	31.7	22.9	17.8
Secondary (VI -X)	14.8	15.6	3.8	10.2
SSC & above	0.3	1.5	-	-
Household monthly income (in BDT)				
	Squatter (%)		Street (%)	
< 4000	2.4		10.7	
4000 - 5999	21.1		29.0	
6000 - 7999	40.7		33.6	
8000 - 9999	21.1		16.0	
10000 +	14.8		10.7	
Household monthly expenditure on food				
Monthly food cost (BDT) (Mean ± SD)	4097 ± 1528		3805 ± 1338	
Percent of income spent on food	58.0		62.0	

Note. BDT= Bangladeshi Taka; SSC = Secondary School Certificate; SD = Standard Deviation;

*P< 0.05 is significant

In squatter, most of the households earned and expended BDT 6000-7999 (\$75-\$100) per month, accounting for 40.7% and 44.5% for the squatters. But 29% of the households from the street earned BDT 4000-5999 (need to put dollar value), with 42% of the households having expenditure at this range. The proportion of the households having income more than BDT 8000 was higher in squatter than the street (35.9% and 26.7%), with getting the same scenario for the expenditure (36.4% and 13.7%). Monthly food expenditure was almost identical in squatter and street (BDT 4097 and BDT 3805, respectively), and more than half of the income had been spent on food. The literacy rate among fathers and mothers was low in the study area. Around half of the fathers and mothers were illiterate in squatters with 73% of the street-side dwellers. Only one-third of the parents of squatters went to primary school, but the proportion of primary schooling was relatively low for the street parents.

Most of the squatter households were living in the tin made wall and soil (51.7%), and the tin made wall and semi-pucca floor (45.9%). But half of the households from the street were living in Jhupri, made of plastic, followed by 20.6% of the families residing in NGO

centers. The proportion of households using firewood as fuel was 74.6% for squatters and 43.4% for the street. Twenty-three (23.4%) percent of the households from squatters used hitter whereas natural gas (30.3%) from NGO centers or neighboring houses and spare straws (23.8%) were used as fuel in street households. Access to electricity and owner of mobile phones in street households were low, and it accounted for 40.2% and 39.7%.

In contrast, almost every household in squatter had electricity access, followed by 80.9% of the households owning mobile phones. All the households from squatter and street were using supply water with sharing the lavatory facilities. Iodized salt and open oil were commonly used for cooking in the study households, and they accounted for more than 80% and 95% of iodized salt and open oil in both areas, respectively. Smoking was prevalent in studied households, and more than 60% of the households from squatters and street-side had at least one smoker. However, more drug-addicted persons were found in the street-side households, with one in five households having one person taking the drug (Table 2).

Table 2. Percent distribution of household and livelihood characteristics of squatters (n=209) and street-side dwellers (n=131)

Characteristics	Squatter (%)	Street (%)
Type of Dwelling room		
Tin made walls and soil	51.7	10.7
Jhupri/Shanty	1.4	50.4
Tin made wall and semi - pucca floor	45.9	4.6
Bamboo made walls and soil	1.0	6.1
NGO center	1.0	20.6
Open place	-	6.9
Type of fuel		
Firewood	74.6	43.4
Natural Gas	1.9	30.3
Kerosene	-	2.5
Spare straws	-	23.8
Hitter	23.4	-

Durable items		
Electricity	99.0	40.2
Mobile phone	80.9	39.7
Supply -water	100	100
Shared lavatory facilities	99.0	98.5
Oil and salt usage type		
Iodized salt usage	87.5	83.3
Packet - oil (cooking) usage	2.9	7.0
Open -oil (cooking) usage	95.7	97.1
Program involvement impact		
NGO involvement	8.1	93.9
Food from other sources	8.1	87.8
Narcotic behavioral pattern		
At least one smoker	61.2	64.9
At least one drug -addicted	1.4	19.1

Note. NGO=Non -government Organizations

Table 3. Responses to the food security questions in the preceding 12 months

	Never / Rarely (%)	Sometimes / Mostly (%)
Had three square meals in a day		
Squatter	0.5	99.5
Street	8.4	91.6
Had to skip entire meals because of a food shortage		
Squatter	84.7	15.3
Street	64.1	35.9
Had less food in a meal because of a food shortage		
Squatter	47.4	52.6
Street	35.9	64.1
Had her or any of her family members eat wheat or another grain in place of rice		
Squatter	52.2	47.8
Street	49.6	50.4
Had to ask for food from relatives or neighbours to make a meal		
Squatter	49.8	50.2
Street	45.8	54.2

Table 3 describes the food security response in the last 12 months before the study. The food security response embraces behavioral perceptions of food vulnerability and stress to food insecurity in the household. Almost every household member from squatter and street had a three-square meal a day, but half of them either asked

for food from their neighbors or relatives to prepare the meal or had wheat or another grain in place of rice. However, most family members occasionally had to skip the entire meal because of food shortages, accounting for 85% for squatters and 65% for the street.

Table 4. Household food security status based on Coping Strategy Index (CSI) by squatters and street-side settlements

Food security status	Squatter (%)	Street (%)	Total (%)
Food secure (0–2)	1.0	0.0	0.6
Mildly food insecure (3–12)	1.9	3.1	2.4
Moderately food insecure (13–40)	69.8	46.5	60.8
Severely food insecure (>40)	27.3	50.4	36.2

Table 5. Types of assistance expected by the respondents and the intention of the activities after receiving monetary aid

	Squatter, n=209 (%)	Street, n=131 (%)
Types of assistance expected		
Money	94.3	95.4
Sewing machine	2.9	1.5
Others	2.8	3.1
Intended activities if they get money		
Any business	61.6	61.6
Buying vehicle	16.2	6.4
Stationary shop	7.1	14.4
Raw food business	7.1	8.8
Buying cattle	3.0	3.2
Go back to the village	2.0	4.8
Others	3.0	0.8

Table 4 presents the household food security status of squatters and street dwellers. It was found that almost all the households were food insecure. Around half of the street-side families were severely food insecure, and nearly 70% of squatter households were moderately food insecure, followed by 27.3% of squatter families living with severe food insecurity.

Table 5 describes the type of expectation of getting any assistance and the activities willing to do to change livelihood and socio-economic situation after getting money as assistance. Almost everyone from squatter and street wished for money. Very few of the households from the study areas wanted to sew machines or rickshaws. Getting a certain amount of money, around 61% of the household from squatter and street would invest in any business followed by 7-14.4% of the households expecting to do stationary shop and 7-8% raw food business. The proportion of households who wanted to buy a vehicle was 16.2% for

squatters and 6.4% for the street. Only a few of the households felt like going back to the village.

Discussion

Families of poor economic conditions from rural and remote areas of different districts across the countries migrate to cities and begin to live in squatters and streets to have a better earning opportunity¹⁹. Unfortunately, the results of this effort are not pleasant, as widespread disparity and malnutrition persists^{19,20}. These squatters and street settlements mainly were located by the side of roads and railways, on the bank of lakes, on government pure-land and even on platforms erected on water bodies. The present study examined the overall situation of livelihood and food security, and the strategies adopted by Dhaka city's squatters and street dwellers. Findings show most of the houses were poorly constructed (made of bamboo mats and poles), thatched or semi pucca/concrete tin sheds and thickly

built-in small land with insufficient ventilation. Almost half of the street dwellers lived in jhupri, a shack is a small hut built from bits of plastic paper or wood. Families in squatters lived in these places by paying rent, whereas street dwellers usually did not need to pay rent, but they had to bribe local police officers or political leaders. Additionally, the threat of eviction of squatters or street dwellers was to confront very often. The roads and passing lanes within the squatters and street dwelling places were very narrow and not hygienic. The environment was polluted with human excreta and bad smells. Every year during the rainy season, waterlogging took place in the squatter areas. The entire area, including roads, lanes and walkways, remained submerged in that period²¹.

The study did not find a substantial difference between squatter and street-side dwellers, in how they perform their different livelihood approaches. However, there is an absolute difference in the pattern of accommodations, cooking, eating, and child feeding. From the study findings, it is well evident that street-side dwellers had a worsened condition than the squatter counterparts. They were staying behind in income-earning, and consequently in their overall food expenditure. However, the average household earning in squatter was BDT 7153 or \$86, which is the only task, \$7 higher than street people. Both settlements stayed far less than the average national household income²².

Nonetheless, some street people were found some better conditions as they were engaged with different voluntary organizations and NGOs. They got some assistance, e.g., food, money, advice, and medical facilities free of cost. This urban poor usually spent BDT 4000 or \$48 monthly on food expenditure, which is almost BDT 2000 or \$24 lower than the national level²². Admittedly, getting some food ration and money assistance from NGOs calls them to spend less on food.

Not having enough income sources is one of the chief impediments leading to an impoverished life settlement. Many households had prime earners who worked as unskilled laborers, accounting for 31% of fathers, and

many of them worked as day laborers. These families were more vulnerable to being food insecure as there is no certainty to get jobs, work, or any other earning sources and subsequently to buy food regularly²³⁻²⁴. Mother headed families were comparatively more available in street settlements (25%) because their husbands either died or left them or were in jail; that made them migrate to the urban street without that potential earner. Mostly, getting better monthly paid work was a problem for these slum dwellers. Due to rising expenses, they were having difficulties paying bills. At the end of the month, they were unable to feed their family enough²⁵.

Moreover, those who worked in garment factories usually did not get a salary on time, and sometimes they faced salary cuts if they remained absent from work for one or two days for any reason. Furthermore, no government or non-government organizations operate any program intended for income-generating activities for women. As a result, they have no or little opportunity to earn money.

The overall literacy condition of the parents was deplorable, as most of them never went to school. Class ten completed parents are scarce. That situation made them more vulnerable to coping up in this dynamic city, especially to get a job, conduct with people, generate some innovative ideas, or properly utilize health facilities^{2,26}. These problems cumulatively created a worse situation in their way of living, health, and nutrition. Indeed, 40% of the mothers did not do any income-generating activities, making these families more susceptible to becoming impoverished.

The study found a high prevalence of food insecurity in both settlements; the majority of the households are moderately and severely food insecure. The results are considerably higher than the report on household food security in Bangladesh's urban slum areas²². Severely food insecure families are more prevalent among street occupants. A study by Huda (2014) reported that people living on the streets of Dhaka city face extreme food insecurity; around 83.3% of them are hungry at some point during the year, and 62% are dissatisfied with

their three meals²⁷. Findings imply that the squatter dwellers had better conditions than the street people, but their state is still not acceptable. Seventy percent of them are moderately insecure about food. Likewise, when these urban poor people faced a lean period, less chance to work or earn money, maintain life with further difficulties^{28,29}. They had to compromise their food quality and, in some cases, quantity to cope with the situation. Accordingly, more than 40% of the household took less than three meals a day due to food scarcity.

In some cases, they needed to collect low-cost ration rice. Some of them managed food items from neighboring shops on credit, while others borrowed loans from relatives or neighbors. Those who had a membership in a cooperative society borrowed loans from their respective organizations, and some households spent their savings to survive against difficult situations. Indeed, fulfilling basic needs was a struggle for the urban poor.

However, more than 60% of the household had a smoker, and 20% of the street family owned a narcotic user. Among street dwellers, many male workers usually earned their livelihood by collecting waste materials and are continuously surrounded by malodorous areas; most of the time, they became addicted to different sniffing narcotics. The study also found that they had access to electricity, supply water, and shared lavatory facilities as they live in urban settings. Mobile phone users were frequent among squatter occupiers. Although most of the households of both settlements usually bought iodized packet salt, they periodically bought open packed oil for cooking as the packet oil price is out of their financial capacity. Nonetheless, most families did not wish to go back to the village if they were given some financial assistance and hoped to start a business.

This study had some limitations to consider as part of the overall interpretation. As we used a convenience sampling strategy, the representativeness of the sample analyzed against all the children and mothers living in

squatters and streets remains uncertain. While more rigorous sampling and recruiting methods could enable us to reach street- and squattersubpopulations of children and mothers with potentially different nutritional statuses, the convenience sampling method is frequently used to study populations in informal urban settlements³⁰. There are, however, several strengths to the study. This cross-sectional study might be a better source of data for policy judgments for the underserved community than longitudinal studies as a fixed point in time, risk factors fluctuate more across the region than they do over time³¹. Further, this study included a large sample size; previous studies have noted collecting data from slums is challenging³². Large sample size can be advantageous for the interpretation of results since it allows a more accurate estimate of prevalence, and it usually makes assessing the representativeness of the sample easier. Importantly, this paper provides a deeper understanding of the status of the food security and livelihood issues of this underserved population.

Conclusion and Recommendations

Families of poor economic conditions from rural and remote areas across the countries migrated to Dhaka and began to live in squatters and streets to have a better life. However, these squatters and street-side dwellers suffer more from severe food insecurity and possess a lower living standard. Illiteracy, lack of skills, and poor income make such people live in such inhabitants and make them socially excluded. The following recommendations are suggested to improve the quality of life of these people: (1) As severe food insecurity exists in almost all households, financial assistance under the national social safety net program could be considered; (2) Since they are not willing to go back to the villages, skill training should be provided and could focus on small scale business development; (3) Institutional access to education, health and social services should be increased, and (4) social issues such as divorce, drug addiction should be addressed.

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