

Perceptions and behavior related to noncommunicable diseases among slum dwellers in a rapidly urbanizing city, Dhaka, Bangladesh: a qualitative study

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ABSTRACT

The increasing burden of noncommunicable diseases (NCDs) in Bangladesh can be attributable to rapid urbanization and coinciding changes in lifestyle accompanied by nutrition transition. The objective of this study is to explore respondents' lived experiences and perceptions relating to NCDs and nutrition change in an urban slum community in Dhaka.

Qualitative methods were employed to explore a general understanding of behavior related to NCDs among residents of the slum community. We conducted key informant interviews of six men and seven women of various backgrounds and five focus group discussions to focus salient topics emerged from the interviews. The transcriptions of the audio-recordings were thematically analyzed, using the constant comparison method.

Four major themes emerged: (1) financial hardship influencing health; (2) urbanized lifestyle affecting diet; (3) tobacco and sweetened tea as cornerstones of social life; and (4) health-seeking behavior utilizing local resources. One notable finding was that even with general economic improvement, respondents perceived poverty to be one of the major causes of NCDs. A promising finding for potentially curbing NCDs was the current trend for women to walk for exercise contrary to the commonly held notion that urban dwellers generally lead sedentary lifestyles.

This study described how urban slum dwellers in Dhaka, experiencing a transition from a traditional to urbanized lifestyle, perceived their daily practices in relation to NCDs and nutrition. Our research revealed both adverse and encouraging elements of perceptions and behavior related to NCDs, which may contribute to the optimal design of NCD prevention and health promotion programs.

Keywords: noncommunicable disease, qualitative study, Bangladesh, slum dweller, urban lifestyle

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INTRODUCTION

Noncommunicable diseases (NCDs), comprised of cardiovascular diseases, cancers, diabetes and chronic respiratory diseases, have become an important public health agenda for low and middle income countries.¹⁾ NCDs were responsible for 38 million (68%) of the world's 56 million deaths in 2012, among which 28 million deaths occurred in low and middle income countries.²⁾ One of the focuses of the Dhaka Statement on Urban Health in Sustainable Development, which was adopted by the 2015 International Conference on Urban Health in Dhaka, was chronic diseases linked to poor diets, sedentary lifestyles, and obesity, in addition to traditional urban health challenges.³⁾

The burden of NCDs in Bangladesh, a lower–middle income country in South Asia,⁴⁾ is increasing and represents a challenge to public health.⁵⁻⁷⁾ A total of 522,300 deaths occurred due to NCDs in 2012, accounting for nearly half of the total mortality in the country.²⁾ The upward trend of NCDs can be attributable to various factors including economic development, changes in lifestyle, accompanied by nutrition transition accelerated by rapid urbanization.⁷⁻⁹⁾

In the past decade, Bangladesh has experienced remarkable economic development, seeing increases in life expectancy and per capita food intake.¹⁰⁾ Poverty dropped from 56.7% in 1991/92 to 31.5% in 2010,¹¹⁾ nevertheless, the absolute number of people living below the poverty line (US\$ 1.90 per person per day) was about 28 million.¹⁰⁾ Rapid urbanization has occurred concurrently, with the average annual growth rate of the urban population at 3.8% between 1990 and 2015, resulting in 34% of Bangladesh's total population being urbanized in 2015. The estimated population of the metropolitan area of the capital city, Dhaka, was 17.6 million in 2015.¹²⁾ As the hub of Bangladesh's rapidly growing economy, Dhaka attracts a massive influx of rural migrants in search of better working opportunities, and 48% of all slum dwellers of the country live in Dhaka division.¹³⁾

The unplanned growth of Dhaka failed to accommodate the tremendous pressure of in-migrants. It is currently estimated that one third of Dhaka City Corporation's population lives in slums where they lack adequate social services including housing, safe drinking water, sanitation, and health services.¹³⁾ Particularly, the weak, inadequately resourced and fragmented health system cannot accommodate to the health needs of the urban poor.^{14,15)} Previously, NCDs were regarded to be associated with higher socio-economic status; now however, they are recognized as major public health threats across all socio-economic groups. Furthermore, in most countries, people of low socio-economic status who live in poor or marginalized communities have a higher risk of dying from NCDs than those from more affluent groups.¹⁶⁾ In fact, a study on the change in chronic disease mortality rates in rural Bangladesh indicated that the highest chronic disease mortality rates were found among people in the poorest economic stratum.⁵⁾

Although studies on NCDs among urban dwellers have been conducted in other parts of the world,^{17,18)} such studies in Bangladesh are sparse. Of the few NCD studies that have been carried out in Bangladesh, the focus has primarily been on epidemiological trends.⁷⁾ And unlike studies in other countries,^{19,20)} few of them explored how people experienced lifestyle change and nutrition transition. The objective of this article is to explore lived experiences and perceptions regarding NCDs and nutrition change of people living in an urban slum community in Dhaka, Bangladesh.

METHODS

Study design

Qualitative methods were employed to explore and gain a general understanding of the perceptions and behavior related to NCDs among the residents of a slum community in Dhaka. This research was an integral part of a larger study on NCDs among the urban poor in Dhaka. Other phases of the study focused on the community profile²¹⁾ and epidemiological profile of NCD risk factors.²²⁾ This article presents findings from the qualitative inquiry on perceptions of daily experiences and behavior in relation to NCDs.

Study site and target population

This study was conducted in a poor community in Dhaka, which was initially established by the government as a settlement for the underprivileged in 1972. Due to frequent migration of the population among poor communities, we conducted a complete count household survey in 2014, and established that a total of 8,604 households with a population of 34,170 (17,041 men and 17,129 women) resided in the community.²¹⁾ Although still seen as a slum area, inhabitants were of diverse socio-economic backgrounds. In terms of housing structure, 38.5% of inhabitants lived in *pucca* (concrete roof, brick wall and concrete floor), 31.5% lived in *semi-pucca* (tin roof, brick wall and mud/wooden floor), and 30.1% lived in *kutcha* (tin roof, thatch/bamboo wall and mud/wooden floor). Households of the first housing type were categorized as lower-middle wealth households and the latter two household types were categorized as low wealth households,²¹⁾ while the dwellers were recognized as “urban poor”.

Data collection

Two qualitative data collection methods were employed to triangulate the data to seek convergent validity of results. First, key informant interviews (KIIs) were conducted between November and December 2014 to obtain a general understanding on perceptions and behavior related to nutritional intake. KIIs were conducted with a total of 13 informants of various backgrounds of gender, age and occupation, as shown in Table 1. Then, focus group discussions (FGDs) were conducted between July and August 2015 to complement and focus salient topics that emerged from the KIIs, such as urban lifestyle compared with village lifestyle in terms of nutritional practice, differences observed over time, men’s and women’s expected and actual behaviors related to alcohol intake, tobacco use, and physical exercise. Five FGDs consisting of six to seven participants each were conducted. Each group was organized by gender, age group, and household wealth level as: low wealth women’s group, low wealth men’s group, lower-middle wealth younger women’s group, lower-middle wealth older women’s group, and lower-middle wealth men’s group. The key informants and the FGD participants were purposively selected through snowball technique in collaboration with community leaders. KIIs were conducted privately at participants’ houses. The FGDs were held in a community primary school classroom.

Prior to the study, three KII data collectors (one man and two women) and two FGD facilitators (one man and one woman) were trained by the researchers. The interviewers and facilitators were the same gender as the respondents in the respective KIIs and FGD groups. The data collectors were supervised in the field throughout the process of data collection by Bangladesh researchers.

Data analysis

Both KIIs and FGDs were conducted in Bengali and digitally audio-recorded. The recordings were transcribed verbatim in Bengali and then translated into English. The transcriptions were

Table 1 Characteristics of the key informants

Occupation	Gender	Age (years)	Education level (Length of formal education)
Community leader / Irregular small business	Man	67	Primary (5 years)
Community leader / Supplier / Driver	Man	38	Junior secondary (8 years)
<i>Kobiraj</i> (traditional healer) / Tea stall owner	Man	55	Primary (3 years)
Cleaner	Man	55	None
Drug seller	Man	46	Vocational (12 years)
Unemployed	Man	19	Higher secondary (12 years)
Traditional healer / Maid	Woman	40	None
Physician of a clinic in the community	Woman	29	Bachelor of Medicine (17 years)
NGO community worker	Woman	42	Secondary (10 years)
NGO community worker	Woman	24	University (15 years)
Housewife	Woman	50	Primary (6 years)
Housewife	Woman	46	Secondary (9 years)
Unemployed	Woman	17	Higher secondary (12 years)

thematically analyzed using NVivo 10 (QSR International, Australia). Based on the grounded theory,^{23,24)} the preliminary analysis organized chunks of textual data into open codes that emerged inductively from the data. Three main researchers independently coded a sub-set of data, codes were grouped into focused codes, then, to categories and a category list was formulated. A mini-workshop was conducted among the authors to reach a consensus on the key themes based on the discussion of the focused codes. Throughout the process, the constant comparison method was employed.^{25,26)}

Ethical approval

This study was reviewed and approved by the Bioethics Review Committee of Nagoya University School of Medicine, Japan (approval no. 2014-0021). The Institutional Review Boards of Bangabandhu Sheikh Mujib Medical University and National Heart Foundation Hospital and Research Institute, Bangladesh, approved the study as well. All participants received adequate explanations regarding the objectives of the study at the beginning of each interview and discussion, and signed (or provided fingerprints on) consent sheets.

RESULTS

Four major themes emerged regarding respondents' lived experiences and perceptions in relation to NCDs in the rapidly urbanizing slum community: (1) financial hardship influencing health; (2) urbanized lifestyle affecting diet; (3) tobacco and sweetened tea as cornerstones of social life; and (4) health-seeking behavior utilizing local resources.

(1) Financial hardship influencing health

Lack of access to healthy food

Although heterogenic economic situations were characteristic of the urban slum community study setting, respondents stated that their lives had generally improved. Unlike previous generations, more affluent households in the urban slum were now able to afford meals three times a day. Some respondents could even afford snacks aside from the three major meals. However, this increase in the quantity of food does not necessarily signify improved quality of diet. Most participants were aware that a balanced diet was necessary for one's health, but claimed that they could not afford such a diet due to financial shortcomings. 'Poverty' was usually cited as the reason of not having balanced diet.

"Due to poverty, we do not think about being healthy all the time. We need food to survive, so it does not matter what we are eating." (FGD: woman, low wealth)

Stress stemming from economic hardship

Respondents generally cited that NCDs were caused by various factors including overeating, lack of a balanced diet, and lack of physical exercise. NCDs were also believed to be caused by stress stemming from economic hardship.

(When asked what caused high blood pressure) "I think mostly from tension. How can we raise our kids properly, how can we bear the cost of their study? Poor people are under stress for their survival. All those tensions together aggravate high blood pressure."

(FGD: woman, low wealth)

Alcohol consumption and narcotic use

Although alcohol consumption was not an officially or socially accepted norm due to predominantly Muslim society, respondents mentioned that it was not uncommon in the community. Some respondents described their lives as stressful due to deviant behavior such as drinking alcohol and narcotic practice by some members of the community.

"Many people consume alcohol here..., A person becomes weak and numb because of over-drinking. Sometimes people die from it. High blood pressure is also triggered by consumption of alcohol." (FGD: man, lower-middle wealth)

(2) Urbanized lifestyle affecting diet

Specific unhealthy nutritional habits, particularly excessive salt and sugar consumption, were deeply rooted in participants' daily lives. Traditionally, respondents added extra salt while eating *torkari* (a common daily meal consisting of rice and curry). The consumption of sweets was another reported detrimental habit that was difficult to change. Habits such as excessive use of salt, eating oily foods and consuming ample amounts of sugar (for tea and sweets) were also affected by the rapidly urbanizing lifestyle.

“Thick (unrefined) salt is used for cooking. Thin (refined and often iodized) salt is taken while eating rice (at the table). Some people pinch salt with their right hand and mix it with rice. Other people take it with their left hand and spread it over the rice.”

(KII: man, age 55 years, traditional healer)

(Asked, “Knowing that eating too much salt and oily foods can cause diseases, why do you eat those foods?”) “Because we are slaves of our habits.”

(FGD: young woman, lower-middle wealth)

Outside foods

Foods sold by street vendors and at food stalls were perceived as unhealthy and sometimes even harmful. Respondents mentioned that old oil was repeatedly used at food stalls, which was harmful to their health. At the same time, respondents also stated that street foods were convenient and cheap, given their busy urban lives. Many garment factories were located in and around the outskirts of Dhaka. As an increasing number of women were working in these factories, obtaining food from the street for their families was convenient. Participants stated that people nowadays spend less time cooking and instead depend on ready-made foods, which they nevertheless perceive as ‘unhealthy.’

“We think if we make one fuchka (a snack made of boiled and fried food) at home, it will cost a lot. It is better to buy from outside by spending 20 takas (23 US cents) or so. We often consider this as saving.”

(FGD: young woman, lower-middle wealth)

Barriers to eating fruits and vegetables

Certain foods, particularly fruits and vegetables, were perceived by many participants as being unhealthy due to use of preservatives. Responding to the question of what is ‘unhealthy’ food, many respondents said that ‘fruits and vegetables contaminated with formalin’ sold in markets were unhealthy. Some even believed preservatives such as formalin caused diabetes. The high cost of fruits was also given as a reason for not frequently eating fruits.

“What we are eating in Dhaka nowadays is contaminated. Almost all foods contain formalin as a preservative. Thus, we become ill as healthy foods become unhealthy.”

(FGD: man, low wealth)

“Many people are diabetic because of contamination by formalin in food.”

(KII: man, age 55 years, traditional healer)

(3) Tobacco and sweetened tea as cornerstones of social life

In the community, socializing with friends and neighbors was an important part of daily life. Men were observed to gather at tea stalls with friends and neighbors to drink tea and smoke cigarettes. Smoking by men was socially encouraged as a symbol of masculinity. Women refrained from smoking, but commonly chewed smokeless tobacco. Chewing tobacco was also considered essential at gatherings where elderly people were present. The gesture of welcoming guests to one’s home by offering tea, soft drinks, sweets, and snacks is symbolic of hospitality in Bangladesh society. Tea was always sweetened with large quantities of sweetened condensed milk or sugar.

“After work, we gather for tea and smoking... Usually tea, cigarettes or betel leaves are served at these gatherings.”

(FGD: man, low wealth)

“A friend provokes another to smoke and teases the one who refuses to smoke. Boys and young men find this very insulting and they indulge in smoking to prove themselves enough of a man to their friends.”
(FGD: man, lower-middle wealth)

“Yes, we eat with friends during our chit-chat. We serve (sweetened) tea all year long whenever guests come to our house. We serve cookies and water also.”
(FGD: young woman, lower-middle wealth)

(4) Health-seeking behavior utilizing local resources

Casual check-ups with ‘doctors’ in the community

Pharmacies were found throughout the community. Though pharmacy shopkeepers were usually laypeople without any medical or pharmaceutical training, they were referred to as ‘doctors’ locally. An individual could go to a pharmacy to get his blood pressure and blood sugar level measured for 20–30 *takas* (23–33 US cents) without any waiting time. Both informal (unqualified) drug store ‘doctors’ and trained physicians at NGO-run or private clinics in the community provided patients with advice on controlling or preventing NCDs. A young female physician at an NGO clinic also mentioned that she sometimes recommended that people with high blood pressure to pour cold water on their foreheads (KII: woman, age 29 years old).

“Yes, pharmacies are here. We can check (the blood pressure and blood sugar level) there.... There are clinics here (in the community), but we have to pay the service charge.”
(FGD: woman, low wealth)

“If some people with high blood pressure come, we give medicine for high blood pressure. For some cases (of high blood pressure), we tell them to pour cold water onto their head.”
(KII: man, age 46 years, drug seller)

Walking in the early morning by women as exercise to control diabetes

Both men and women were observed walking in the community or along the road just outside of the community as exercise to control diabetes or body weight. Walking by women seemed to be a current trend in Bangladesh, where the social norm of *pardah* was observed even in urban areas. Although less rigid in the study setting, mobility was, nonetheless, generally limited for women.

“Middle aged women are seen walking. They do it early in the morning after fajar prayer. The road is free from traffic in the morning so people can walk.”
(KII: women, age 42 years, NGO community worker)

“Not only old women, but middle aged women with diabetes or obesity go out for afternoon walks in the Beribadh (name of the area) every day. They walk really fast and they move their hands and other parts of the body. They told me that they are walking, as recommended by their physician for controlling weight or diabetes.”
(FGD: young woman, lower-middle wealth)

DISCUSSION

This study described how urban slum dwellers in Dhaka perceived their daily practices and

behavior in relation to NCDs. Despite general economic improvements, poverty was cited by respondents as one of the main reasons for not maintaining healthy and balanced diet. Additionally, stress caused by economic hardship was cited as one of the major risk or aggravating factors for NCDs.

Respondents also reported that their rapidly urbanizing lifestyle was responsible for their unbalanced diet. Eating larger quantities of food, being engaged in less labor-intensive work, and use of transportation are among some of the developments cited as specific to rapidly urbanizing way of life.^{8,19)} Participants were now being presented with an abundance of food choices from street vendors, food stands and fast-food restaurants. However, as literature has shown and the respondents corroborated to a certain extent, most such foods are deep fried and high in dietary energy.^{9,19)} Increasing consumption of commercially prepared process foods, high in fat, salt, and sugar, was observed by respondents in this community, conforming to the global trend of decreasing nutritional quality in many urbanized settings.^{9,27)}

Furthermore, worldwide, an increasing number of women are working in urban areas, for example in the garment industry in Bangladesh: they have even begun playing the role of family breadwinner.²⁸⁾ Yet, women still play a traditional role of preparing meals for their families. Female participants reported that food from these venues were more convenient and less costly than those made at home. Similar time limitations to prepare healthy food by working women has also been cited in other studies.¹⁹⁾

Notably, there were certain foods that the urban respondents reported to consume less these days than their counterparts in the village or than older generations: namely, fruits and vegetables. Participants were aware that fruits and vegetables were generally good for one's health, but hesitated to purchase them fearing contamination from the food preservative formalin, widely used for commercialized foods. Incidences of food poisoning, and sometimes death due to formalin had been reported in the media^{29,30)} and many respondents expressed concern about it.

Inadequate intake of fruits and vegetables has been discussed in the context of urbanization and contradicting arguments have arisen in the literature.³¹⁾ Low intake of fruits and vegetables has been also reported in Bangladesh.^{6,22)} They are consistent with various studies on globalization and the changing food system.⁹⁾ Our study further indicates that people's negative perceptions and decreased purchasing of fruits and vegetables may have greatly been influenced by expanding modern agri-business where harmful preservatives are being used.

Alcohol consumption and drug use were often mentioned as social nuisances in the community. Some participants went on to attribute stress stemming from both economic hardships as well as from the social nuisance of community members' drinking and narcotic use as possible causes of diabetes, high blood pressure, and heart attack. Indeed, studies have indicated that stress affects NCDs such as cardiovascular diseases.³²⁾ According to a nationwide NCD risk factor survey carried out in 2010, the proportion of alcohol intake was very low: 1.5% among men and 0.1% among women.⁶⁾ Our epidemiological study found that 3.2% in men and none in women were current drinkers.²²⁾ However, as drinking alcohol violates social and religious norms, under or false reporting may have failed to capture the real picture of alcohol and narcotic use in the study setting.

Overconsumption of salt and sugar have been reported as a risk factor for NCDs in many parts of the world, including South Asia.^{9,31)} Respondents eloquently described how difficult it is to change their eating habits such as not adding extra salt to daily meals, stating "we are slaves of our own habits." Moreover, eating, drinking, and smoking habits are deeply interwoven into people's social and cultural lives.³³⁾

This study identified a promising development in urban life that could serve to curtail the risk of NCDs. Contrary to the notion that urban dwellers lead a generally sedentary lifestyle,^{6,34)} it was

observed that people walk as a form of exercise. Although *pardah* still limits women's mobility to a certain extent, middle and older aged women in the study community started walking in groups early in the morning after the prayer of the day. Early morning is the time when they can avoid both traffic and being seen by other people.

Based on the findings of our study, community-based health promotion and NCD preventive activities are promising channels to ameliorate the growing burden of NCDs. Some high risk behavior such as over-intake of salt is in part due to lack of knowledge of hypertension and its consequence. While both respondents and health care providers were fairly aware of the benefits of physical exercise, they were reluctant to modify their diet by reducing the intake of dietary energy and salt. A long term community wide campaign to modify diet may be required, which has been shown to be successful in various cases in Japan.³⁵ A strategic health promotion program could be designed utilizing the positive deviance approach. At the study site, both male and female community leaders from various age groups already exist. These individuals could be trained as peer health promoters for fellow community members.

Many pharmacies are run by laypersons in the community, and they play an important role in bridging the gap where health services in the formal sector fail to reach the Bangladesh people.^{14,36} They not only provide sick people with medicine, but they also check people's weight, blood pressure and blood sugar levels for a reasonable cost. These individuals have the potential to be valuable local resources, providing them with training on proper health advice including timely referral.

This study has some limitations. First, the study did not select specific illnesses or symptoms, but rather dealt with NCDs on a broader scale. Thus, specific major illnesses experienced by the people were not thoroughly examined. Instead, the general lifestyle, which has been traditionally retained in the context of a rapidly modernizing environment, is described set against the NCD backdrop. Second, the location of the study community is unique compared to other urban slum communities, as it is situated near a wide street that provides community members with space for walking.

CONCLUSIONS

This study described how urban slum dwellers in Dhaka, experiencing a transition from a traditional to urbanized lifestyle, perceived their own daily practices in relation to NCDs. Both adverse and encouraging factors for NCD control were identified, which may contribute to optimally designing future health education programs for NCD prevention and health promotion. Specifically, the current trend of walking for exercise can be more systematically promoted. Such a measure could signify a breakthrough for women in a traditional society to combat the growing risks for NCDs and more broadly promote health.

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CONFLICT OF INTEREST

The authors have declared that no competing interests exist.

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