Epidemiological Transition and Non-Communicable Diseases among Urban Poor in Bangladesh: A Knowledge Synthesis

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Abstract

Background: Urbanization is increasing very rapidly in Bangladesh and this rapid growth has hindered government's capacity to regulate, plan or provide health care services in urban areas, especially to the poorest. Due to the epidemiological transition in recent decades non-communicable diseases have been increased significantly in urban areas and the burden of NCDs pose greater risk for urban poor.

Aim: The aim of the knowledge synthesis is to identify the gaps in knowledge in urban health service delivery both from the demand and supply side and generate evidence to formulate policies and strategies to increase access to health services and reduce NCDs among urban poor and provide actionable recommendations.

Methods: A knowledge synthesis was carried out based on the evidence generated in the last ten years through systematic and scoping reviews, surveys, surveillance, mapping of health service, routine information systems concerning both the demand and the supply of health services in urban areas, especially in urban slums. The World Health Organization (WHO)'s conceptual framework on health systems building blocks was used for analysis and organization of information and put together in the socio-economic context of urbanization and poverty. Furthermore the outcomes were compared to WHO's global recommendations and key priority areas for policy advocacy were highlighted to inform key stakeholders, and create ownership for policy advice.

Results: The demand for health services for NCDs in urban poor areas is much higher than that generally perceived with obesity and hypertension affecting a large number of people. The supply side shows a highly-fragmented health system with domination of private sector in urban areas, with lack of regulatory authority in primary health care that overburden the tertiary public health care. There is also lack of clarity about roles and responsibilities in prevention and health promotion among responsible ministries involved. Prevention and control of NCDs among urban poor would require building awareness about the risk factors for NCDs with an emphasis on women and adolescents and young adults and creating and enabling environment so that they can practice healthy lifestyle. The primary healthcare should be redefined to meet the need of urban poor. Strengthening coordination between relevant ministries and investing in social determinants of health in urban settings were highlighted as key priority areas for prevention and control of NCDs in Bangladesh. Some other priority areas include establishing community-based health care services in urban poor areas and establish referral linkages to secondary and tertiary care; improving public health workforce for controlling the burden of NCDs; and engaging private sector to prevent and control NCDs in urban areas.

Conclusion: The Government of Bangladesh should strengthen health care governance and accountability to their citizens for action on NCDs in urban areas. There should be allocation of human resources and budget and strengthening of monitoring mechanisms to ensure transparency and accountability of the authority to provide services for urban poor.

List of Abbreviations

ADB	Asian Development Bank
BMI	Body Mass Index
COPD	Chronic Obstructive Pulmonary Disorders
DGHS	Directorate General of Health Services
DGFP	Directorate General of Family Planning
HiAP	Health in All Policies
HMIS	Health Management Information Systems
ICESCR	International Covenant on Economic, Social and Cultural Rights
MDGs	Millennium Development Goals
MNCH	Maternal, Newborn and Child Health
MOHFW	Ministry of Health and Family Welfare
MOLGRDC	Ministry of Local Government, Rural Development and Cooperatives
NCDs	Non-communicable diseases
NGOs	Non-government organizations
PHC	Primary Health Care
SDGs	Sustainable Development Goals
SDH	Social Determinants of Health
UDHR	Universal Declaration of Human Rights
UHC	Universal Health Coverage
WHO	World Health Organization

1 BACKGROUND

The world is urbanizing rapidly [1] and Bangladesh, like many other developing countries, is also going through this transition (**Figure 1**) [2]. The rate of population growth in urban areas of Bangladesh is 3% per year and with this rate more than half of the citizens will live in urban areas by the year 2040 [3]. Globalization and lifestyle changes due to urbanization have a significant impact on health leading to a double burden of infectious and non-communicable disease [4]. The urban poor are especially vulnerable to this epidemiological transition [5]. Recent reports show that health and nutrition status of the urban poor were worse than those of the urban non-poor, as well national and rural-specific averages [6, 7].

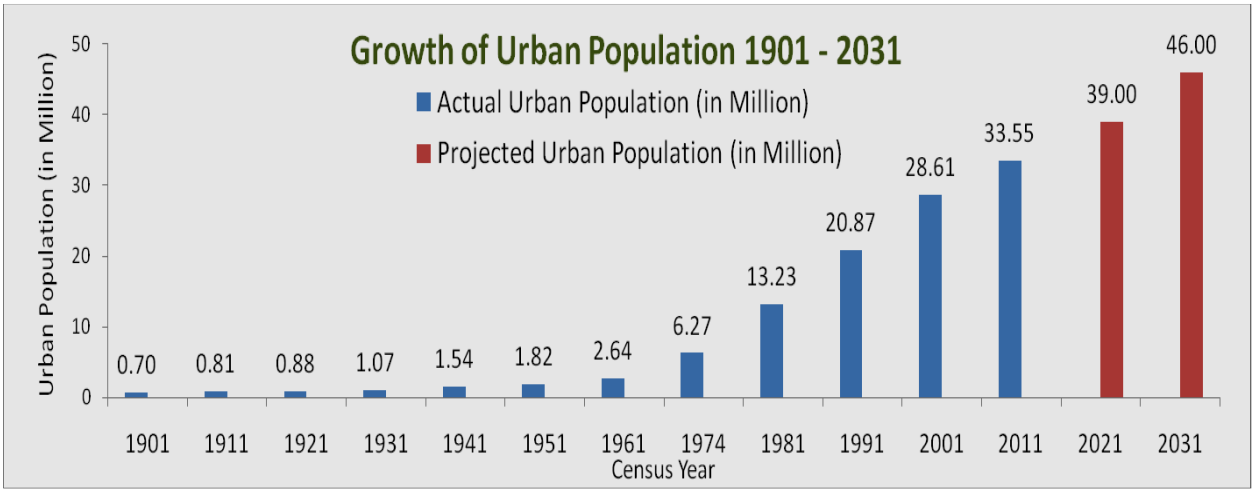

Figure 1. Growth of Urban Population in Bangladesh 1901-2031 (Source: UNFPA 2011)

Globally, the non-communicable diseases (NCDs) are responsible for death and disability on a massive scale [8]. During 1990 to 2008, while the proportion of global deaths caused by communicable diseases along with nutritional deficiencies dropped from 34% to 25%. On the other hand, the proportion of deaths attributed to all NCDs rose from 57% to 65% over the same period [9]. The 2016 global burden of disease analysis estimates that though the total of disability-adjusted life years (DALYs) has been declined but DALYs due to NCD has been increased by 11.4% from 2005 to 2015 which make up the total global burden of premature death, disease and injury [10].. South East Asia had the highest rates of NCD-related deaths (**Figure 2**) [11].

Similar to many other low and middle income countries (LMICs), Bangladesh is also undergoing an epidemiological transition especially in urban areas [12]. Recent studies on NCDs among urban poor population in Bangladesh demonstrated dramatic increase in obesity and hypertension in this population [13]. Prevalence of hypertension was more than double than in the urban population compared to that of rural [14]. Hypertension and diabetes are also prevalent among urban slum dwellers in the capital Dhaka and women had higher prevalence compared to males [15].

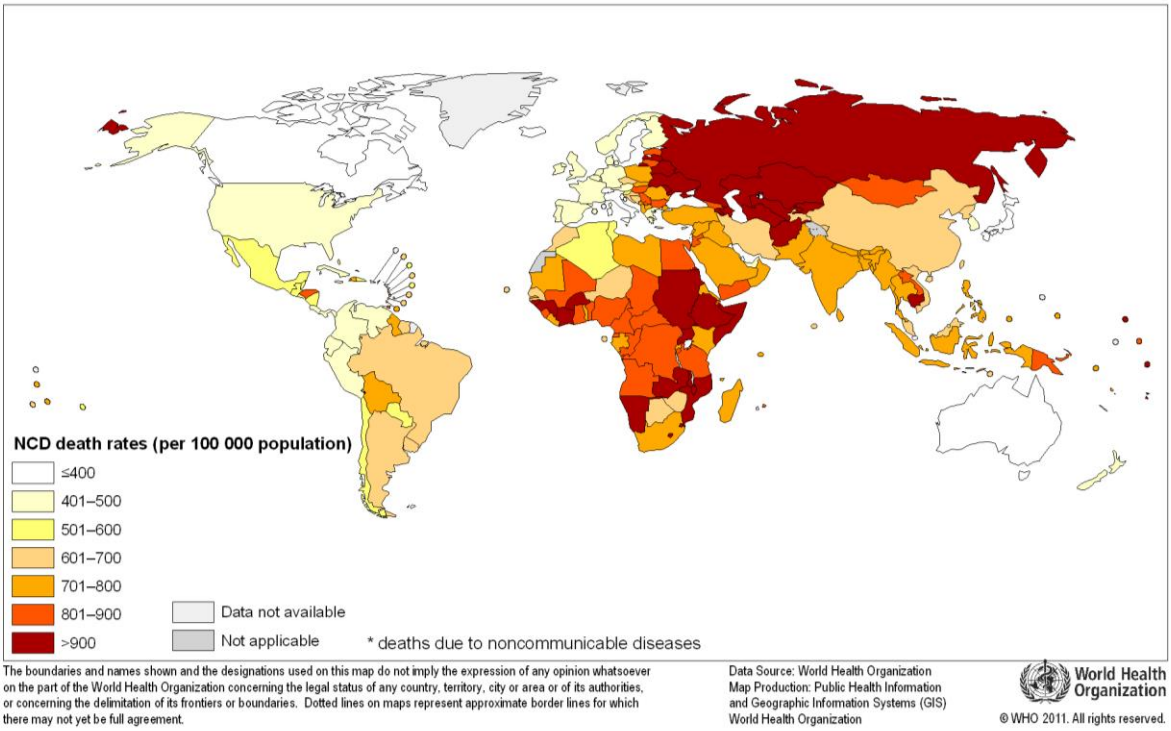

Figure 2. Global distribution of age-standardized death rates due to non-communicable disease, 2012

Bangladesh has been acclaimed by the international community for its significant success in terms of the Millennium Development Goals (MDGs), especially achieving the health related targets. Recently, Bangladesh has signed the United Nations Sustainable Development Goals (SDGs), which, among many other goals, obliges the country to provide healthcare to all, irrespective of social class, and to make cities and human settlements inclusive, safe, and resilient [16]. Reduction of NCDs is particularly important to achieve the SDGs, which was not emphasized in the earlier global goals.

However, health system of Bangladesh is not yet prepared to address the emerging epidemic of NCDs [17]. Given the limited resources and weak and fragmented health systems in Bangladesh, the country has already begun to face significant challenges to address the problems related to NCDs [18]. At present there is an urgent need to understand the urban health issues in Bangladesh through the health system perspective using the lense of equity and social inclusion to achieve Universal Health Coverage (UHC) in Bangladesh [19].

2 SYNOPSIS OF KNOWLEDGE SYNTHESIS

2.1 Aim of the knowledge synthesis

The aim of the knowledge synthesis is to take stock of existing knowledge in urban health both from the demand and supply side and generate evidence to formulate policies and strategies to increase access to health services and reduce NCDs among urban poor.

2.2 *Objectives of the knowledge synthesis*

- Identify the gaps in demand- and supply-side in Urban Health with an emphasis on NCDs among urban poor
- Explore the social determinants of health in urban poor settings that contributes to the burden of NCDS; and
- Formulate policy recommendations and identify priority areas for policy advocacy and for policy change.

3 METHODS

To carry out the knowledge synthesis, a targeted narrative review was carried out on evidence generated in the last ten years through surveys, surveillance, mapping of health service, routine information systems concerning demand and supply of health services in urban areas, especially in urban slums. Literature was identified, published in English language and available in the databases of PubMed, Google Scholar, World Health Organization (WHO), United Nations database and icddr,b's repository. In addition to these, manual hand searching was conducted to identify and review the relevant articles in icddrb's organizational database and library articles covered broad ranges that include descriptive reports as well as qualitative and quantitative studies. The key words used were: 'urban', 'urbanization', 'urban health', 'urban poor', 'public health', 'non-communicable diseases', 'health systems' and 'Bangladesh'.

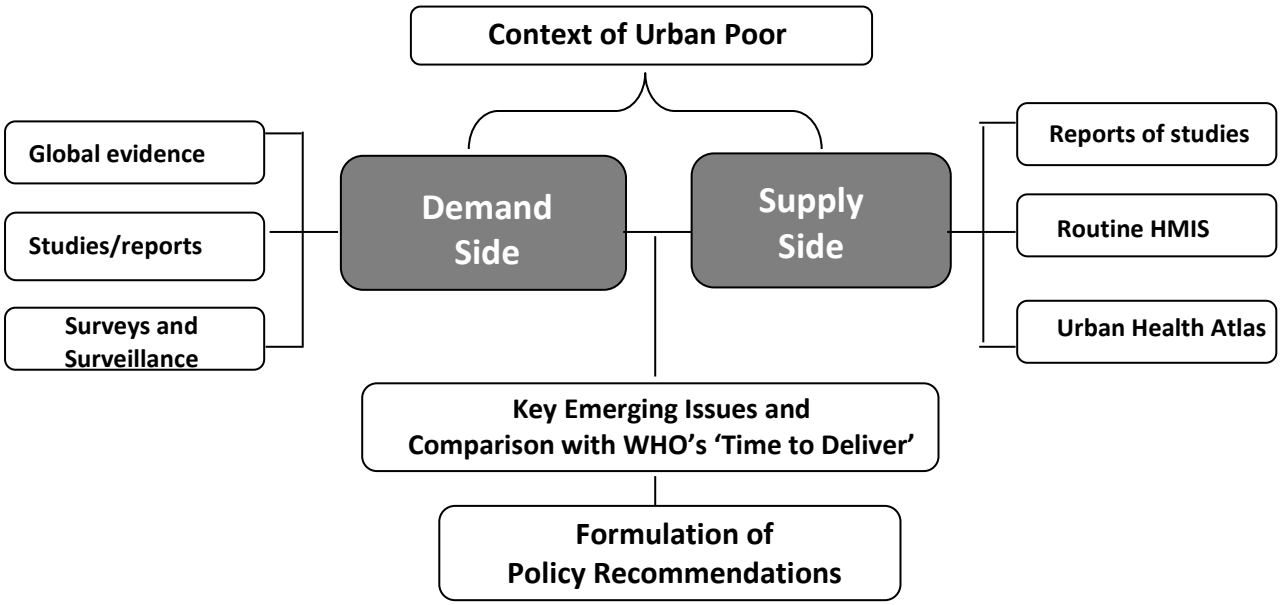

Figure 3: Overview of Knowledge Synthesis

The literature search was conducted between May 2017 to February 2019 and during this period the collected literature was reviewed and synthesized for the analysis. The review involved two stages, first an extensive search was conducted for existing literature and then

the collected literature was screened in relation to their relevance with regard to the issues of urban health and NCDs [17, 20-22]. During the review process efforts were made to synthesize the relevant materials in order to provide a comprehensive understanding. All information was arranged by demand (population needs) and supply (service provision) side which was further disaggregated according to the health systems building blocks of WHO and the information were put together in the socio-economic context of urbanization and poverty (**Figure 2**). Finally, the main issues and recommendations that were generated from this exercise were compared with global recommendations [23-29] and key recommendations for policy dialogues were validated through a stakeholder consultation.

4 RESULTS

4.1 Demand side issues

4.1.1 Epidemiology and trends of NCDs in urban Bangladesh

Bangladesh, like many developing countries, is straddled in the demographic and epidemiological transition[12]. In a review of 23 developing countries, Bangladesh was found to have the 9th highest rate of age-standardized mortality among the included countries due to chronic diseases, primarily cardiovascular diseases and diabetes. Around 68% of deaths in Bangladesh are due to NCDs and other chronic health conditions [17, 30]. **Figure 4** gives an age standardized death rate and proportionate mortality in Bangladesh due to different NCDs as of 2014.

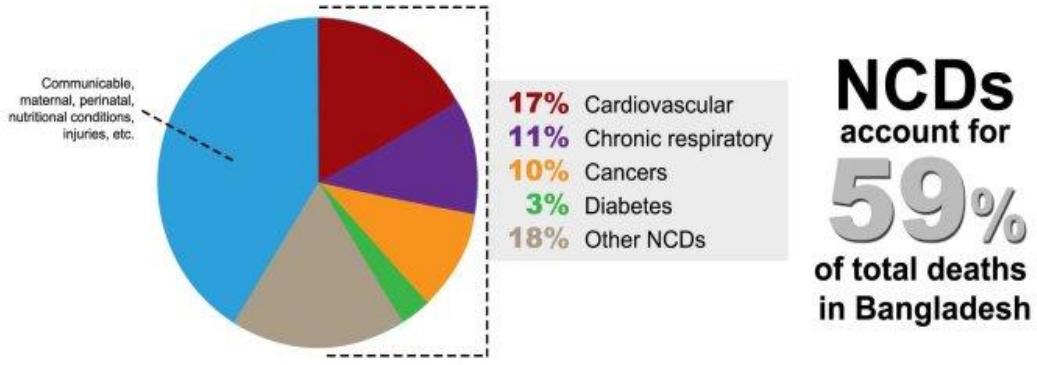

Figure 4: Age standardized death rate and proportionate mortality in Bangladesh due to different NCDs.

Bangladesh is facing a double burden, with a huge load of infectious diseases and an increasing burden due to NCDs [31, 32]. Unidirectional globalization and rapid unplanned urbanization serve as a channel for the promotion of unhealthy lifestyles and environmental changes. A study conducted in 2007 in some medical college hospitals of Bangladesh found that about one third of hospital admitted patients aged 30 years and over were due to major NCDs. A recent survey among the urban slum dwellers in Dhaka revealed that the prevalence of hypertension was 18.6% in men and 20.7% in women and the prevalence of

diabetes was 15.6% and 22.5% in men and women respectively, which is much higher than the estimated national prevalence (7%) [13]. A study found that the prevalence of hypertension was more than double that of in the urban population (24%) compared to the rural (11%) [32]. High blood pressure/hypertension was found in the six largest city corporations and found higher prevalence of hypertension among the slum dwellers, which is 25% for women and 18% for men respectively [13]. In general, hypertension increases with age and women has higher proportion than men (**Figure 5**).

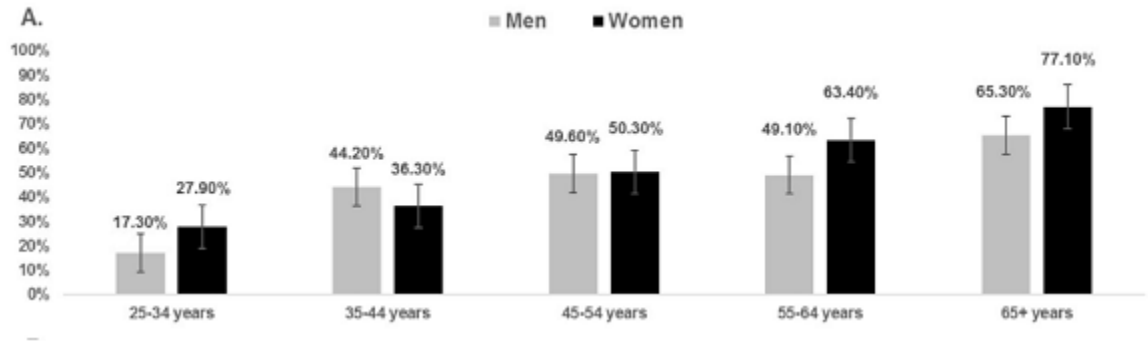

Figure 5. Prevalence of hypertension among adults in urban Bangladesh by age.

Risk factors for NCDs include older age, female gender, high BMI, abdominal obesity, physical inactivity, hereditary factors, and residing in urban areas [33]. Overall, 18% of the population currently has overweight (BMI>25.0 kg/m^2). The prevalence of overweight in women exceeds the proportion of those in men and the prevalence is higher in urban areas compared to rural (**Figure 6)**. Waist circumference is a measure of central obesity. Eight per cent men and 33.7% women (21.7% sexes combined) had increased waist circumference (>94 cm in men and >80 cm in women). Higher prevalence of both central and general obesity in women may predispose them to an increased risk of NCDs. The prevalence of self-reported hypertension was 12.5% (men 10.9% and women 13.9%). Prevalence of hypertension was also related to age [34].

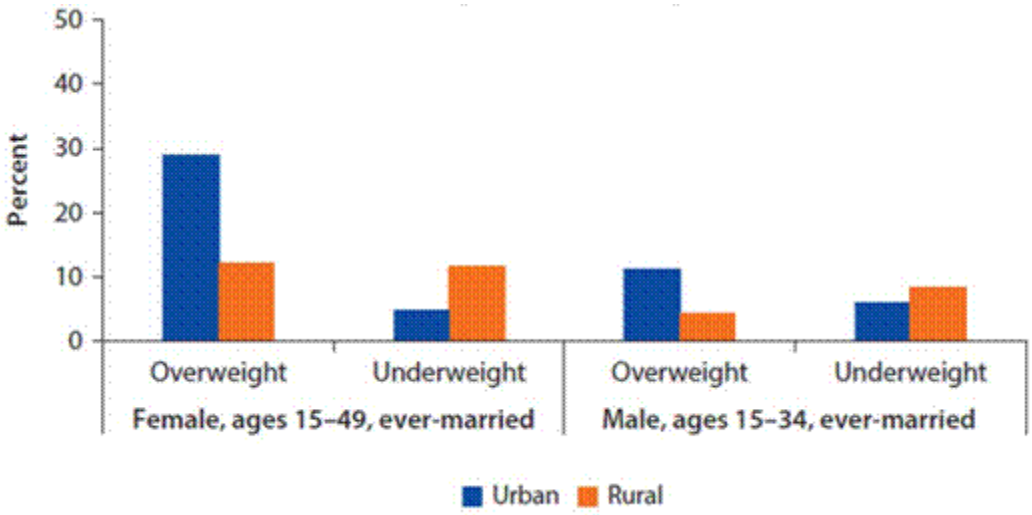

Figure 6. Overweight and obesity among urban and rural adults in Bangladesh.

4.1.2 NCDs among urban poor

Recent studies showed that NCDs are common event among urban poor. One recent study found 40% of urban poor overweight and obese and 22% women and 15% men had diabetes. 90% of the poor did not consume fruits and vegetables [13]. In Bangladesh, poorest income quintile spent less amount of their income on food and consumed less protein, fruits each day than the higher income quintiles [35]. Higher risk for NCDs and their risk factors was found among women. Age-specific body mass index of non-pregnant women aged 15–45 years in rural and urban poor areas of Bangladesh showed a clear increase in BMI even among urban poor women compared to that of rural areas (**Figure 7)** [36]. Risk factors for NCDs are very high among urban adolescents and therefore the particular focus should be given in these age groups for prevention of NCDs.

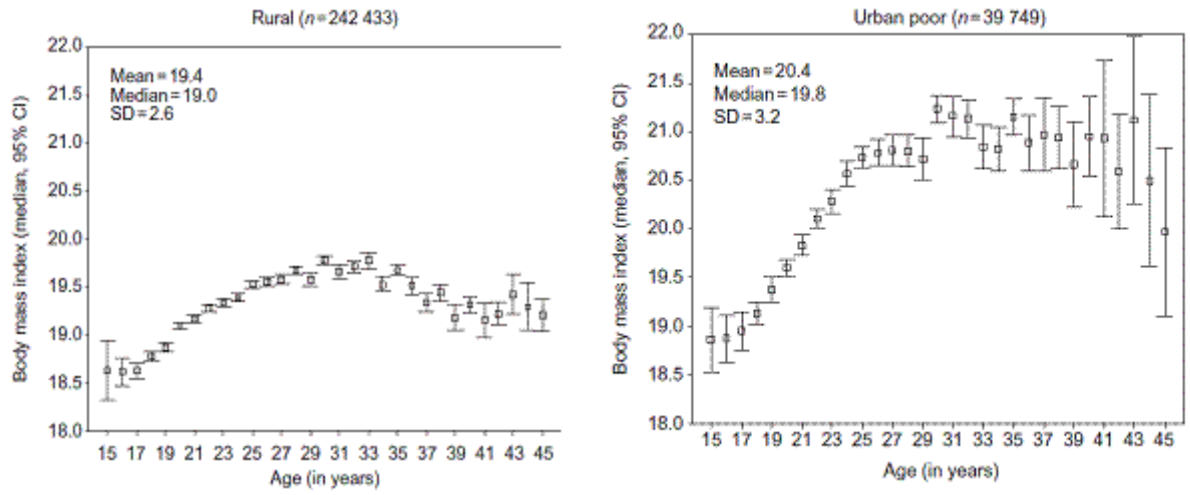

Figure 7: Age-specific body mass index of non-pregnant women aged 15–45 years in rural and urban poor areas of Bangladesh

Broad societal and contextual factors also play an important role in the epidemiological shift and burden of NCDs. Therefore it is very important to understand the context of urban population, especially the poor.

4.2 Urban context: social determinants of health (SDH) in urban areas

All major urban centers in Bangladesh have slums; 1.06 million people live in slums in Dhaka division followed by the Chittagong, Khulna and Rajshahi divisions respectively [15]. Cities such as Dhaka concentrate multiple health hazards associated with urbanization such as pollution, road traffic injuries, contaminated water supply, crowding and poor housing. Within cities huge and growing socioeconomic disparities in health care access and outcomes are apparent [37]. Health and wellbeing depends social determinants of health including housing, income, neighborhoods, or substandard education, dietary intake etc. beyond the health services [38]. **Figure 8** focuses on some key factors associated with needs of and demand for NCDs services.

Urban poverty, housing and water sanitation

The poor are usually low-paid, work in the informal sector and are not able to carry the rent for the housing in the formal sector [39]. Existing evidence demonstrates that urban slum dwellers are exposed to adverse environmental conditions such as overcrowding, poor quality drinking water and sanitation and lack of waste removal. In the slum settlements of Dhaka city, poor quality and densely built housing is typical, where basic public infrastructure such as water, energy, sanitation etc. is non-existent or very limited [40]. Most of the households in the slums do not have access to safe drinking water and sanitation facilities. A study conducted in slums in Dhaka city revealed that 85.07% get water from public tap and 33.33% are non-sanitary latrine (open place) users [40].

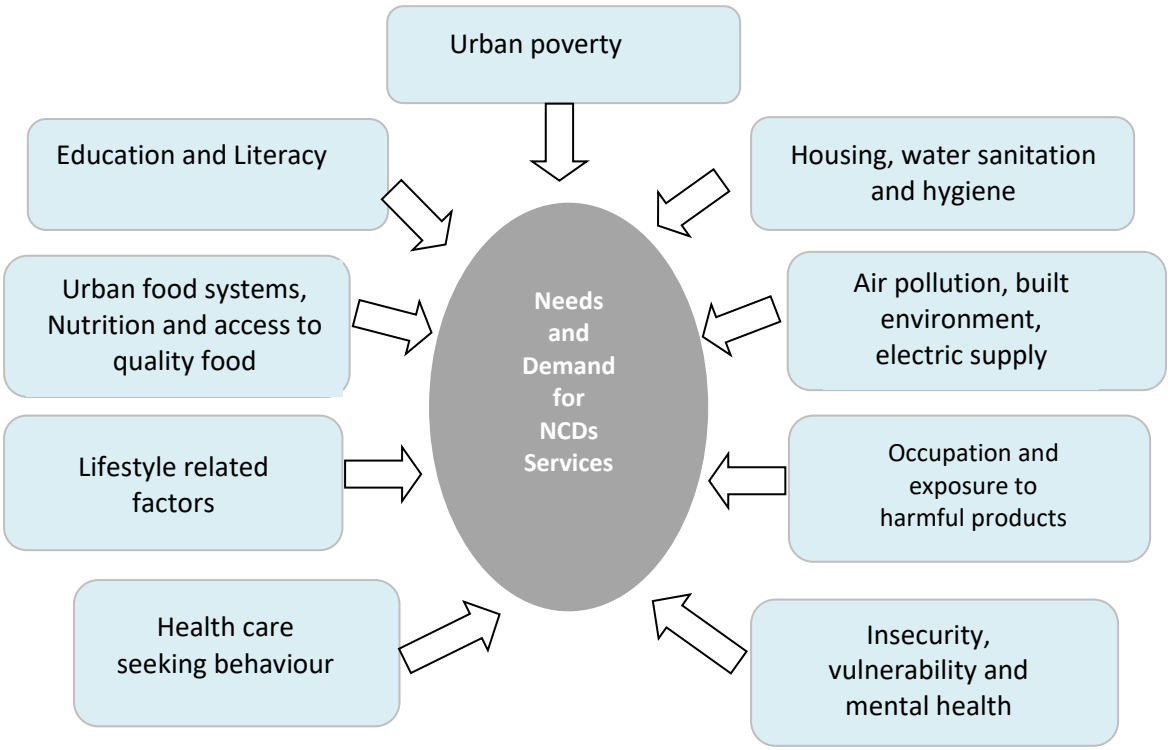

Figure 8: Contextual factors influencing the needs of and demand for NCD services by urban poor

Education and health literacy

Generally, the levels of educational attainment are higher in urban than the rural areas in the country [41]. However, the scenario is not same for the urban poor as the study findings revealed that 50.2% were illiterate and only 0.9% completed their secondary level (SSC) of education [42]. Education indicators for children living in informal urban settlements are the lowest in the country. It has found that net enrolment in primary education is only 70%, where nongovernment providers are playing a significant role in urban poor settlements.

Over half of students leave school prior to class five and dropout rates are more than six times the national average [43]. For urban slums, net attendance in secondary education is only 18%, while national average is 49% (48% in rural areas and 53% in urban areas) [44]. Disadvantaged and illiterate patients with limited access to health, nutrition and lifestyle related information and often are not informed of potential risks and adverse effects prior to medical procedures or any interventions.

Food insecurity, food consumption and behavior

There are inequities in health due to adverse living condition and inadequate access to the basic services. It was found that the poorest income quintile spent less amount of their income on food and consumed less calories and proteins each day than the higher income quintiles. As the slum dwellers mostly worked in the informal sector, food insecurity arises from insufficient cash income to afford a nutritious diet [45]. The overall daily per capita consumption of fruit among the poorest was 1.7 servings and of vegetables 2.3 servings against their minimum daily total requirement of 5 servings. Considering this as minimum recommended amount, 95.7% did not consume adequate fruit or vegetables on an average day. Urban poor lack the time for cooking and therefore eating out is common which leads to high intake foods rich in salt, sugar and fats. A recently published study conducted in three slums of Dhaka city proved a higher prevalence of tobacco use, which contributing in development of non-communicable diseases [46]. **Figure 9** shows some example of obesogenic environment and food systems in Dhaka, which is also available and accessible for urban poor.

Figure 9. Obesogenic environment and food systems in urban areas of Bangladesh

Physical activity and occupational health

Physical activity level is very low among people living in urban areas. One study showed that in Dhaka one third (33%) usually do not engage into even moderate activity (such as brisk walking, household chores) and 62% people usually did not engage into any vigorous

physical activities such as running, cycling, swimming, climbing, lifting heavy weights etc [47]. High physical activity was more in rural men than their urban counterparts. Slum dwellers also face health hazards beyond their settlements. They are involved in various type of works mostly in the informal sector and the work environment poses threat to them [48]. Empirical studies revealed that male living in the slums in Dhaka city are engage with pulling rickshaw, garment worker, household worker, day labor, beggar, street hawkers, small traders etc [49] On the other hand, females are found engaging mostly working as housemaid, garment worker, day laborer [50]. Men and women face different health hazards associated with these professions.

Insecurity, vulnerability and mental health: especially affecting women

Over the years, there has been increasing concerns with the rise in violence and crime in slum areas. Informal structure, insecurity from crime and violence is widespread in Dhaka's slums [51]. Eviction is a major source or reason of vulnerability for urban slums. Natural disasters also disproportionately affect urban poor. Women and girls are particularly vulnerable in any situation and face additional risks associated with urban poverty and insecurity. Violence against women and girls (VAWG) adversely affects their health because a higher prevalence of physical violence is found in slum areas in Bangladesh [52]. Women working in the garments sector contribute the most to the economy of Bangladesh. They mostly reside in urban poor communities and experience various forms of exploitation in the workplace but are unable to exercise their right to safe and healthy working conditions. Low pay, long hours, and poor nutrition make many workers vulnerable to health problems, including malnutrition and micronutrient deficiencies [53]. At the same time, unsafe work conditions occasionally lead to disabilities and death from injuries among these women. The above mentioned insecurities and vulnerabilities pose stress and anxiety among urban poor population. A systematic review demonstrated the growing trend in the occurrence of mental disorder during 1980-2013 [54]. The prevalence varied from 6.5 to 31 percent among adults' and from 13 to around 23 percent among children.

Health care seeking by the poor

Urban poor living in slums have limited access to formal health care facilities because the cost of care is high; they need to compromise with their working hours [55]. Slum dwellers usually obtain low-cost services from the informal sector for acute illness and mostly depend on self-care. Type and severity of illness, health beliefs and perceptions, access to therapeutic options, financial access etc. determine their health seeking behaviors [55]. Finally, globalization, lack of safely and security and lack of facilities for physical activity and broader policy and pontifical factors posed additional risk for sedentary lifestyle that leads to NCDs.

4.2 SUPPLY SIDE ISSUES

NCDs are chronic diseases that develop progressively, impacts on functional health with the passing of time, and need health services sustained for a prolonged period including 'end-of-life' pain management and other services. Although it is apparent that Bangladesh is going through an epidemiological transition, the health system of the country is not yet prepared to address the emerging epidemic of NCDs [17]. Bangladesh, as an aspiring middle-income country and its health system continues to cater to the needs of children and reproductive age women with little preparedness and skills to address the emerging

epidemic of the NCDs. The urban health systems has been critically analyzed using WHO health system building blocks [56] keeping urban poor and NCDs in the focus **(Figure 10**).

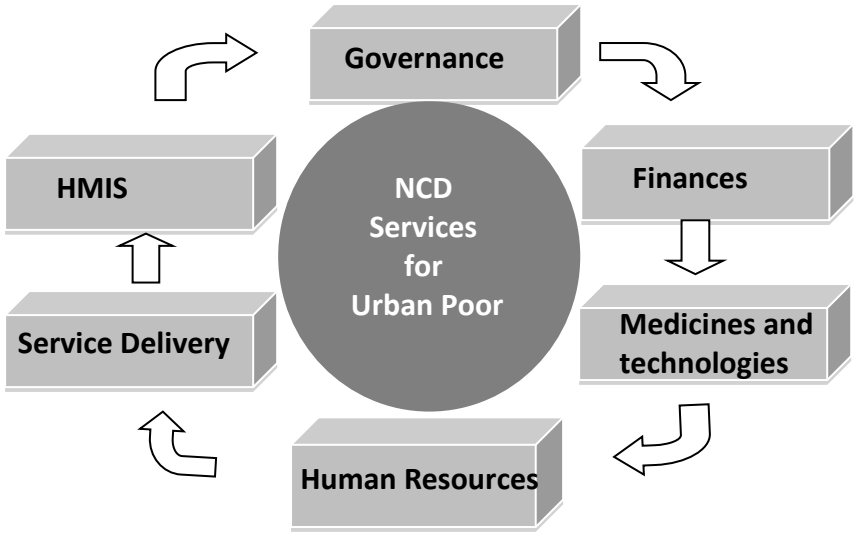

Figure 10. NCD services among urban poor in light of WHO Health System Building Blocks

4.2.1 Urban health services

Bangladesh, as an aspiring middle-income country and its health system continues to cater to the needs of children and reproductive age women with little preparedness and skills to address the emerging epidemic of the NCDs. The current health system of Bangladesh is complex, involving several government ministries, the private sector, non-government organizations (NGOs), and development partners [57]. The Ministry of Health and Family Welfare (MOHFW) is responsible for formulating health policy and regulation and supports an extensive country-wide network of health services through DG Health Services (DGHS) and DG Family Planning (DGFP) that include district hospitals, *upazila* health complexes at the upazila (subdistrict) level, union health and family welfare centres, and community clinics at the ward level (**Figure 11**). While rural health provision is mainly the responsibility of the MOHFW, the urban health system is governed simultaneously by two ministries: the MOHFW and the Ministry of Local Government, Rural Development and Cooperatives (MOLGRDC) .

In urban areas, public tertiary care is provided by the MOHFW and according to the local government act primary health care (PHC) is the administrative responsibility of local governments through city corporations and municipalities [58]. Due to insufficient human and financial resources at the level of urban local bodies, the MOLGRDC has been providing PHC in urban areas through an Asian Development Bank (ADB) supported project that contracts out services to NGOs [59, 60]. The essential package of services offered is largely focused on maternal, neonatal, and child health, with limited capacity for the prevention and control of non-communicable diseases and there is a lack of service for men adolescents and elderly populations [17]. There are no referral linkages from PHC centres to public secondary and tertiary government healthcare facilities, from the NGOs and the

private sector [61]. There is also lack of coordination between the two implementing ministries around service provision, coverage, and referral poses critical challenges to ensuring quality and accessible healthcare, especially for the urban poor. Services provided by the NGO are largely focus on maternal, newborn and child health (MNCH) services and have limited capacity and resources to provide services required for prevention and control of NCDs. Concern worldwide, BRAC and other NGOs have targeted activities for health of urban poor but these NGOs lack capacity to provide services related to prevention and control of NCDs. In addition, despite the overwhelming presence of private healthcare service delivery in urban areas, this dimension remains mostly undocumented. Given limited resources and weak and fragmented health systems in Bangladesh, the country has already begun to face significant challenges to address the problems of NCDs. Since urban environment is more predisposed to have NCDs. therefore there is an urgent need to look at the NCD issues from the supply side perspective.

Figure 10: Health and nutrition service provision in rural and urban areas in Bangladesh*

**Directorate General of Health Services, (DGHS); National Nutrition Services (NNS), Upazila Health Complex (UHC); Community Clinics (CCs); Expanded Programme on Immunization (EPI); Directorate General of Family Planning (DGHS); Institute of Public Health Nutrition; Maternal and Child Welfare Centre (MCWC); Family Welfare Centres (FWCs). Urban Primary Health Care Service Delivery Project (UPHCSDP).*

A health facility mapping of urban slums in Dhaka revealed that 80% health service delivery points are operated by the private sector [62]. A quantitative survey conducted in Sylhet City Corporation illustrated that 76% of urban poor suffered for acute health problems and 45% sought health care from a pharmacy (drug store). On the other hand, almost 90% reported sufferings from chronic health problems, where 25% consult with pharmacists/quacks [63]. However, for chronic illness and hospitalization urban poor people depend on government health facilities and autonomous medical universities/institutions

e.g. Bangabandhu Shaikh Mujib Medical University (BSMMU), Bangladesh Institute of Research and Rehabilitation in Diabetes, Endocrine and Metabolic Disorders (BIRDEM), National Institute for Cardiovascular Diseases (NICVD) etc. icddr,b's hospital and TB clinics also provide free of cost service and low cost services are also provided by charitable organizations.

Overall, the health service delivery in urban areas is fragmented, there are multiple actors and vertical programmes, lack of planning and coordination leads to gaps and duplication of services. Dysfunctional referral system and lack of well-defined catchment population also hinder service delivery, which is specifically required to address NCDs. In Dhaka and a few other cities MOHFW runs Government Outdoor Dispensaries (GODs) in selected urban areas. However, services provided by dispensaries are limited and are not capable of serving large number of populations. Recently initiatives have been taken at the Community Based Health Care (CBHC) Line Directorate of DGHS, MOHFW for remodeling the GODs and improving service provision in urban areas.

4.2.2 Human resources for health in urban areas

In Bangladesh, doctor per 10,000 population ratio is 1.1 in rural vs. 18.2 in urban areas. However, most of the health facilities often are not accessible by poor. Health departments of local government institutions do not have sufficient human resources and capacity to provide medical services. In urban areas Primary Health Care service providers e.g. UPHCSDP and other NGOs' readiness and orientation towards prevention and management of NCDs are not systematically known. The Urban health strategy and Health Population and Nutrition Sector Development Programme (HPNSDP) Program Implementation Plan (PIP) aims at to expand NCD control efforts at all levels by streamlining referral systems [64]. The Bangladesh Health Facility Survey (2014) provides information on services for selected NCDs, e.g. diabetes and cardiovascular diseases. It was found that 18 percent of Bangladesh health facilities offer services for diabetes, and 16 percent provide diagnosis, prescribe treatment, or manage patients with cardiovascular diseases. District hospitals (95 percent) and upazila health complexes (UHCs) (81 percent) are more likely to provide services for diabetes and cardiovascular diseases in urban areas compared to the other facilities [65]. However, most other facilities are still not prepared to provide quality services for diabetes or cardiovascular disease. While in rural areas, a doctor has been assigned for NCD activities in Upazila Health Complex and NCD corner has been established and all field level workers were trained to collect data on fruit and vegetable intake, dietary added salt, tobacco use, blood pressure, height, weight and capillary glucose as per WHO STEPS, such services and skills are absent in urban areas . The human resources problem is therefore a problem of numbers and capacities of staff. Public health workforces that are well-equipped with prevention and control of NCDs are not also identified at various levels in the government health system.

4.2.3 Infrastructure and supplies

In urban areas only 17 Government Outdoor Dispensaries from the MOHFW are available and many of these area non-functional. Bangladesh Health Facility Survey also reveals that facilities lack the essential medicines for treating either cardiovascular disease or diabetes. Urban facilities are more likely to offer diabetic services than rural facilities (57% vs. 14%)[65]. The District Hospitals and private hospitals provide more services for cardiovascular diseases than other facilities. Over half of urban facilities provide services for

cardiovascular diseases as compared with 13% of rural facilities. The GIS-based 'Urban Health Atlas' data shows that in urban settings there are in some areas huge gaps and in other areas duplications of services as well as available infrastructures and supplies [66] (**Figure 12**).

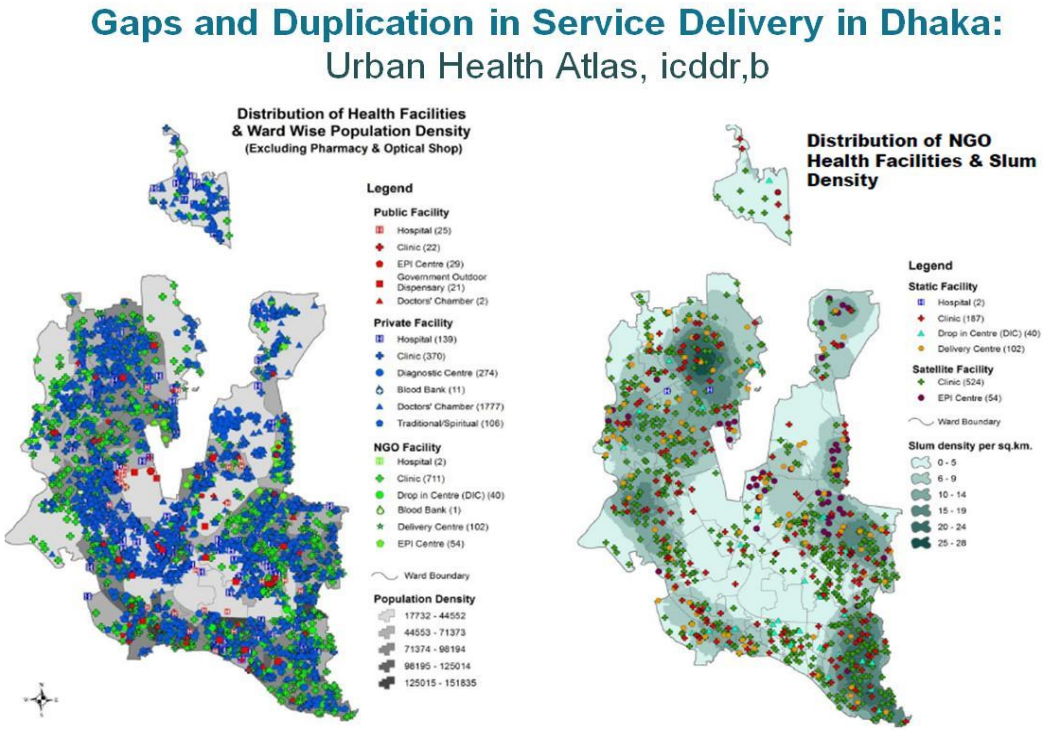

Figure 12. Data from GIS-based 'Urban Health Atlas' showing gaps and duplication in services as well as supplies in Dhaka, Bangladesh.

4.2.4 Health Management Information Systems (HMIS)

Bangladesh has an excellent digital connectivity in the public sector, linking all levels of service delivery for real time data under a national data platform known as DHIS2 since 2009 [62]. In this platform, along with the other diseases, NCD-related data are collected from the public sector health facilities beginning from community clinics up to district hospitals. These data contribute to measuring the public sector's health systems performance. However, this database cannot provide a comprehensive picture of the country as a whole because DHIS2 does not cover non-state sectors (NGOs and for-profit sector) and the urban segment of population at large. Additionally, these data provide numbers of the diseases diagnosed, having no population reference. Therefore, without denominator, the disease burden at population level cannot be determined, which is needed for monitoring SDGs and global NCD monitoring framework indicators. Under MOH&FW, The Commission on Information and Accountability (CoIA) has extended its programme to add NCDs. From July 2015, icddr,b has taken over the responsibilities of CoIA Secretariat. Currently there is no routine surveillance of NCD related morbidity and mortality [17]. While there have been some attempts to develop such databases (NCD) in some specialized tertiary hospitals or upazila health facilities, these are mainly limited to public facilities. There have been minimal efforts to integrate private sector data into the

existing datasets such as the national District Health Information System 2 (DHIS2). Coordination is lacking between public and private services [37]. Also, data from urban areas need to be aggregated with the rural datasets. This requires planning, consensus on measurable indicators (for risk factors and diseases), capacity development, and mobilization of financial resources.

4.2.5 Financing services

Critical issues or gaps in NCDs prevention and control in Bangladesh have been identified from an equity perspective [67]. The government health systems do not have any subsidized treatment for NCDs and the existing PHCs that are managed by the local government authority in the urban areas has little public infrastructure to support NCD prevention and management. Looking at the issue very critically, based on the economic and social impact of NCDs is a need for formulating relevant policies, particularly for the poor [67].

Currently there urban health is financed mostly by the Out of Pocket and the UPHCSDP project is not sustainable as it is run by loan provided by ADB [68]. There is severe lacking of adequate funds for NCD prevention and control among the urban poor; urban health financing is often fragmented because of aid modalities that focus on time-limited projects. Investments in social protection and health insurance may reduce out-of-pocket expenditures and help prevent catastrophic medical expenditures, while greater coordination among urban service providers around hours and locations, community outreach, and referral may improve services coverage and use [68].

While the government has adopted UHC to benefit the poor, in practice, it has been challenged in many ways in urban Bangladesh, for prevention and control of NCDs in urban areas in particular. The influence of profit-making private sector in NCDs services is a critical example here. As the discussions above indicate, the urban poor have very limited choice to receive services on NCDs from public institutions; therefore, they have to depend on range of private entities at higher cost. This may be consistent with the state's Public-Private Partnership (PPP) approach, but it is must be inconsistent with the idea of 'UHC'. There is lack of coordination, monitoring and accountability mechanisms in the health systems also because of the influence of commercial or political interest group.

4.2.6 Governance and stewardship

While coordination is crucial to address bottlenecks in governance that hinder the availability, accessibility, and utilization of urban health services, it requires policy support at the highest level to be effective. While the idea of 'governance' involves many perspectives including voice and accountability; political stability; government effectiveness; regulatory quality; rule of law; and control of corruption etc , this section here limits its discussions into the policy frameworks in relation to the Bangladesh government's efforts to prevent and control non-communicable diseases (NCDs) in Bangladesh, especially among the urban poor in particular. It is evident that there has been much progress in making policy directions in preventing and controlling NCDs in Bangladesh. However, these directions, to a larger extent, reflect gaps and complexities both from *global equity* (Universal Health Coverage) and *local operational perspectives* to deliver services on NCDs to urban poor in the contexts of Bangladesh. While several studies identify a lack in implementation and monitoring [69], this section, applying a critical look on existing policy directions, explores that the national

policies, to a greater extent, are insufficient to serve urban poor in case of NCDs prevention and control.

The National Health Policy 2011 identifies 'urban health' as one of challenges in health systems, also poor people's reduced access to health services in urban context [70]. However, it does not specify any strategic focus to prevent and control NCDs among the urban poor. The policy emphasizes on awareness building on NCDs, but makes very general statements, ignoring the special needs of this segment of population. The government's Health, Nutrition and Population Strategic Investment Plan (HNPSIP) 2016-2021 is an important document which identifies key investment areas to accelerate the development of the sector [71]. Based on the HPNSP, the government is implementing an Operational Plan (OP) to prevent and control NCDs in the country. The OP has one of objectives to promote development and implementation of effective, integrated, sustainable, and evidence-based public policies for NCDs, their risk factors, and determinants [72]. It also recognizes NCDs' devastating impact on poor segment; however, does not indicate any special provision for the poor in urban contexts. The Investment Plan of HPNSP identifies the need to expand existing services to urban and hard to reach areas; it urges for giving more attention for Essential Services Package in urban areas and directs to achieving the aims of UHC. While the Plan sets 'equity' as one of principles in the statements, it does not have any focus on preventing NCDs for the urban poor.

Because of complexity in service delivery in various contexts, the government agrees and recognizes that a multi-sectoral approach is needed to prevent and control NCDs. Therefore, a multi-sectoral action plan has developed to reduce preventable morbidity, avoidable disability and premature mortality due to NCDs. The plan brings about the idea of 'UHC' describing that 'all people should have access to promotive, preventive and curative, and rehabilitative basic health services'. It also sets some NCD service coverage indicators such as number of City Corporations integrating essential NCD services in all urban primary health care centers. However, no specific measures are described in the document which could ensure urban poor people's access to NCDs services based on equity [73].

While the above policy documents from MOHFW reflect a solid gap in ensuring urban poor people's access to NCDs services, the National Urban Health Strategy 2014 has a key focus on health among urban population. It emphasizes on UHC with a pro-poor focus; recognizes the development dynamics including rural-urban migration, geographical expansion of existing city areas; therefore, emphasizes on giving more attention to urban poor. This strategy owned by the Ministry of Local Government; however, heavily focuses on primary health care (PHC) and no any priority it gives on NCDs [67]. Although an 'Urban health Strategy' has recently been approved by the MOLGRDC but the implementation plan has not been approved as of yet. Recently, the government has made a number of initiatives including policy and strategic directions to prevent and control NCDs. Biswas et. al. identify a total of 51 relevant documents, among them nine (18%) was on formulated policies, five (10%) were related to guidelines and thirteen (25%) were on strategic planning issues. In the policy discussion Biswas identifies lack of proper planning, implementation and monitoring in the case of NCDs prevention and control in rural Bangladesh. Biswas did not focus on the urban poor.

5. DISCUSSION

5.1 Issues arising from the review

The urban poor in Bangladesh are facing more daunting challenges in terms of health outcomes in comparison with their rural counterparts. While in this paper, we analyze the urban health issues from a health system perspective, it is important to conceptualize the broader contextual issues of the epidemiological shift and increased burden of NCDs and acknowledge the social determinants of health and their contribution to NCDs (**Figure 13**).

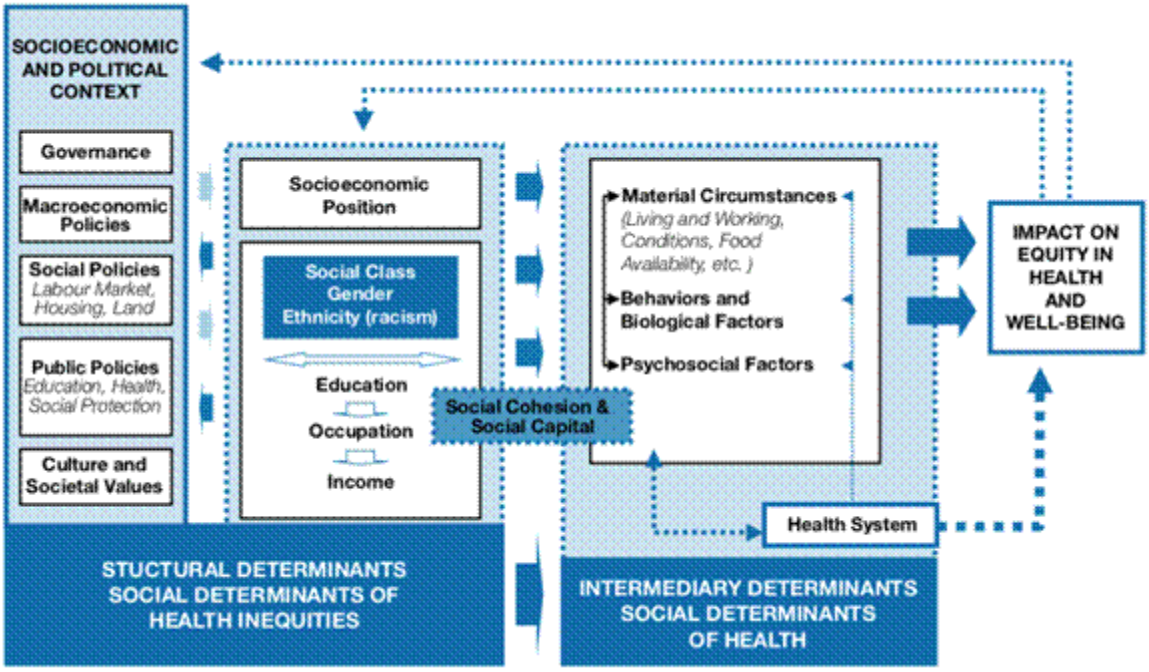

Figure 13: Marmot commission social determinants of health: intermediary and structural determinants

Intermediary Determinants of NCDs

In general interventions to reduce NCDs has been focused on the Intermediate determinants of SDH rather than the structural determinants of health. For prevention and control of NCDs it is crucial to displace the biomedical paradigm of health and its focus on treatment, and cure of disease and illness to a more preventive approach involving non-health sectors. The interactions among health, urban environment, gender needs to be explored. In Bangladesh, health policy-makers also need to acknowledge that health is not an output of the health sector alone, but an outcome of many other factors and sectors beyond the confines of health services provision [6, 74].

Structural determinants of SDH

Considering the urban poor as disadvantaged group national, health policies and strategies need to incorporate urban health as a distinctive area of focus. In particular, special attention should be given to addressing deep inequities in access to healthcare and reducing the disproportionate exposure of the urban poor to adverse social, economic, and environmental conditions that provoke ill health. Important in this response is recognition of the heterogeneity of the urban poor and the context-specific challenges they face. To

improve slum conditions, integrated urban development efforts are especially needed that address issues of housing, tenure security, water and sanitation, green space, education, and healthcare. Although there has been a number of policies and strategies has been formulated on prevention and control of NCDs in Bangladesh, the country still lacks a comprehensive and integrated NCD prevention and control strategy and plan of action across the public and non-state sectors in the urban and rural areas, covering all population.

The government's role in managing NCDs is limited mainly to provide health education to people and capacity development of the health workforce with less focus on preventive care at primary and secondary levels, and available services typically concentrated in urban areas in tertiary facilities. Moreover, there is lack of referral linkages between the primary and higher level of health facilities that are particularly critical for NCDs. Strong referral linkage between the primary health care facilities run by the local government and the secondary and tertiary services provided by the MOHFW should be established. For example, people with NCDs or having a risk factor of NCDs (e.g. hypertension, diabetes and obesity) can be identified through the screening services at the PHC level by the local government can be referred to secondary and tertiary health services under MOHFW as required in close proximity to lessen the patient load of tertiary care of MOHFW. In addition, urban HMIS should be strengthened for implementing a nationwide and integrated NCD surveillance and monitoring system and it needs to be prioritized by the MOHFW with support and assistance from other ministries, non-state sectors, academia and practitioners.

5.2 Recommendations by comparison with WHO's Time to Deliver

The above issues are critical and also supported by a very recent WHO report on global situations of NCDs titled "Time to Deliver," (WHO 2018). The report identifies a range of challenges that are relevant to the Bangladesh contexts.

Box 2: Key topics in Time to deliver

1. Lack of political will, commitment, capacity, and action
2. Lack of policies and plans for NCDs
3. Difficulty in priority-setting
4. Impact of economic, commercial, and market factors
5. Insufficient technical and operational capacity
6. Insufficient (domestic and international) financing to scale up national NCD responses; and
7. Lack of accountability.

Political will, commitment, capacity, and action

The 'governance' section of this paper clearly illustrates that there is a serious policy gap in NCDs prevention and control for urban poor. The government aims to achieve UHC by ensuring 'access of all people' including poor. Although there has been much progress in making policy directions in preventing and controlling NCDs in Bangladesh, these directions, to a larger extent, reflect gaps and complexities both from *global equity* and *local operational perspectives* to deliver services on NCDs to urban contexts of Bangladesh. The

policy directions, to a large extent, do not address complexities to deliver services on NCDs to urban poor in the country. Lack of political and financial commitment affects the capacity and actions as we see that the pro-poor PHC services in the urban areas have a severe lack of capacity and don't offer expected services on NCDs.

Political leadership and responsibility

Bangladesh has archived a lot in various sector with strong leadership and commitment in health. However, political leaders at all levels should take responsibility for comprehensive local actions, together with the health sector, that can advance action against NCDs in urban areas. Urban areas should also be engaged under NCD action, through new and existing mechanisms. Service providers in both state and non-state sector (including NGOs and Private sector) in urban areas, should redesign their policies and activities to integrate NCDs prevention and control programme.

Polices and Plans for NCDs

Although there is some strong polices and plans in place, it seems that the plans and priority-setting are not appropriate to serve the urban poor. The state owned Operational Plan on NCDs prevention and control aims to promote development and implementation of effective, integrated, sustainable, and evidence- based public policies for NCDs, their risk factors, and determinants. But we see that the plans have limited provision for the poor in urban contexts. The 'health services' for urban poor are heavily dominated by essential care including MNCH services and not prioritizing controlling NCDs for all age groups.

NCDs within Health Systems and UHC

Bangladesh government should reorient health systems to include health promotion and the prevention and control of NCDs in their UHC policies and plans, according to national contexts and needs. Since urbanization is a new reality in Bangladesh and there will be huge urban population in the coming years, the UHC packages should necessarily ensure delivering services on NCDs to the urban poor.

Priority-setting for NCDs

The Government of Bangladesh should identify and implement a specific set of priorities within the overall NCD agenda, based on public health needs. Immediate, intermediate and long term areas should be identified and actions should be taken. Prioritization is key to achieving the scale-up that countries need to reach the SDG targets.

Technical and operational capacity

There is a severe lack of technical and operational capacity to deliver services on NCDs for the urban poor. The PHC services, the pro-poor delivery systems do not have any option at all. The services at secondary level are too general with inadequate skilled workforce. The services in tertiary level have better capacity; however, the urban poor often find it difficult to access, mostly for financial reasons.

Financing to scale up national NCD responses

Currently there urban health is financed mostly by the Out of Pocket expenditure and the UPHCSDP project is not sustainable as it is run by loan provided by ADB. There is severe lacking of adequate funds for NCDs prevention and control among the urban poor.

Bangladesh is experiencing increasing trend of economic growth over last couple of years. The private sector is making a significant role to this growth through expansion of market/commercial activities, which in turn, producing benefits for urban poor as well. However, discrimination between rich and poor or higher income inequalities is a serious concern with this growth scenario. Bangladesh Government and the international community should develop a new economic paradigm for funding action on NCDs. The government should seek and allocate adequate funds for NCDs prevention and control among the urban poor.

Accountability, coordination and regulation

The government should strengthen governance and accountability to their citizens for action on NCDs. There should be regular surveillance and monitoring mechanisms to ensure transparency and accountability of the authority. The Government should increase effective regulation, appropriate engagement with the private sector, academia, civil society, and communities, building on a whole-of-society approach to NCDs, and share experiences and challenges, including policy models that work. The government should ensure such an environment which encourages cooperation and support from all strata including market forces and civil society organizations involving the non-health sector.

5.3 Rrecommendations from policy dialogues and stakeholder consultation workshops organized by SHARE project, icddr,b

icddr,b, the International Centre for Diarrohoeal Disease Research, Bangladesh is implementing a project titled "Strengthening Health, Applying Research Evidence (SHARE)" for the period of 5 years (January, 2015 – January, 2020). The project aims to support evidence-informed public health policy-making in Bangladesh, further to progress towards Universal Health Coverage (UHC) and improved health equity, particularly for urban poor and those suffering from non-communicable diseases (NCDs). SHARE project is being implemented through a partnership approach and in collaboration with the University College London (UCL) in the UK as co-applicant and the Directorate General of Health Services (DGHS), Bangabandhu Sheikh Mujib Medical University (BSMMU), and the Institute of Epidemiology, Disease Control and Research (IEDCR) in Bangladesh as the affiliated institutions.

The first policy dialogue organized by the SHARE project of icddr,b was held in July, 2016 at the Red Shift Café in Gulshan, Dhaka and the objective of the event was to promote evidence-informed and solution-focused debate on Primary Health Care (PHC) in urban areas. The then Mayor of Dhaka North City Corporation attended the policy breakfast as the Special Guest and representatives from different stakeholders, development partners, academicians, development professionals and sector experts shared their own views and solutions to key challenges in policy implementation on urban health care.

Photo: Policy Dialogue on Urban Primary Health Care and info-graph used, July, 2016

On 19 September, 2016, the second policy dialogue entitled 'Strategies for Prevention of Non-communicable Diseases in Bangladesh' was organized at the IEDCR auditorium, Mohakhali in collaboration with Non Communicable Disease Control (NCDC), DGHS, MOHFW involving all key stakeholders. The objective was to stimulate commitment to supporting and formulating strategy and operational plan of the government while the government was finalizing its 5-year health plan of 2016-2021 and the Program Implementation Plan (PIP). The dialogue identified the gaps and opportunities in the health systems to strengthen the services for prevention of non-communicable diseases in Bangladesh. Discussants of the policy dialogue talked about existing health programmes related to NCDs in Bangladesh and recommended key priorities to formulate health sector plan addressing the NCDs burden. NCD among urban poor was highlighted as a key area that required attention.

Photo: Policy Dialogue on NCDs at DGHS, MOHFW, Sept, 2016.

Recently, the project has developed a 'Health Policy Dialogue (HPD)' – the first Think Tank for Health in Bangladesh that promotes high level analysis and dialogue for policy influence; establishing a mutual engagement programme to increase understanding between researchers and policy-makers regarding the relevance of high quality evidence for policy. Under the banner of Health Policy Dialogue another policy dialogue was held on 'Urban Health to achieve Universal Health Coverage' on 24 September, 2018 involving high level policy makers and key stakeholders along with representative from media and general public. This was organized in Bangla the event was widely disseminated both in print and electronic media.

Photo: Policy Dialogue on Urban Health under 'Think Tank for Health', Sept, 2018.

Actionable Recommendations derived from policy dialogues:

Intermediary level:

- Build awareness among all stakeholders including policy makers, practitioners and communities on the extent and importance of the NCDs for health and wellbeing at present and in near future, and its linkage with achieving universal health coverage (UHC).
- Ensure health and nutrition literacy from early age involving adolescent and youth for long-term behavioral modification to avoid risk factors for NCDs and should be at school and out-of-school adolescent forums.
- Create an enabling environment to practice healthy dietary and other lifestyle behaviours especially to prevent and control diabetes and hypertension with a special focus on sugar, salt and trans-fat.
- Generate evidence on urban health and NCDs and take innovative measures to tackle NCDs within existing health infrastructure in an effective, efficient, and cost-effective manner.
- Gender equity and social inclusion should be prioritized for achieving universal health coverage.
- Redefine urban primary health care to meet the need of urban poor, and provide service for people of all ages with a particular focus on women living in urban poor areas in major cities in Bangladesh.

Structural level:

- Identify the health-system bottlenecks for NCD service delivery strengthen all building blocks of the urban health systems to address NCDs.
- Strengthen existing and ensuring community-based health care services (e.g. rural community clinics) in urban areas to provide PHC services and build capacity of service providers for NCD control and prevention.
- Develop physical and human capacity at the PHC level for NCD services of common modifiable NCD risk factors for early diagnosis and treatment for NCD.
- Establish referral linkages with secondary and tertiary care services including long-term, follow-up services for cases identified at PHC
- Engage urban planners for redesigning and recreating urban space to increase physical activity level of the population, especially for children and adolescents.
- Investigate urban food systems and identify the root causes of risk behaviours, establish food labeling and incorporate taxes on high-calorie food and tobacco, ban food advertisement targeted to children and adolescents
- Strengthen urban HMIS integrating data from private sector and NGOs, who are the main service providers in urban areas, and establish a comprehensive surveillance system for major NCDs at the national level. Develop and pilot innovative m-health and e-health based solutions that are within the reach of urban poor population.
- Engage private sector and multiple actors involved social determinants of health for creating and enabling environment for healthy lifestyle required for prevention and control of NCDs.

- Ensure financial commitment for urban health polices and strategies and establish health insurance for urban vulnerable population and ensure free supply of services for urban poor families for financial risk protection.
- Explore ways to sustain urban PHC services and mobilize resources for continuing services
- Strengthen coordination between MOHFW and MOLGRD&C and engage other relevant ministries for prevention and control of NCDs and their risk factors
- Develop an integrated, multi-sectoral approach to manage NCDs in urban areas involving both health and non-health sectors that contributes to health of urban population and ensure coordination and accountability.

Finally, a stakeholder consultation workshop was organized on 21 December 2018, to validate the findings of the knowledge synthesis. A few topics were prioritized for policy advocacy considering feasibility, impact and relevance to achieving universal health coverage – the overall objective of the SHARE project. The priority areas identified are shared in **Box 3**.

Box 3: Priority areas identified for policy advocacy and immediate actions

- Build mass **awareness and improve health and nutrition literacy** among urban poor communities about the risk factors for NCDs for all ages with a **specific focus on women and adolescents and intake of salt, sugar and trans-fat**;
- **Redefine primary health care** delivered by urban health service providers to prevent and control of NCDs among urban poor;
- **Establish and strengthen community-based health care services** in urban poor areas and **establish referral linkages** to secondary and tertiary level health care;
- **Improve public health workforce (PHW)** and build **capacity of community health workers (CHWs)** for preventing and controlling the burden of NCDs;
- Strengthen **urban health management information system (HMIS)** by engaging with urban health actors especially NGOs and private sector to get routine data and **use Information Communication and Technology (ICT) tools for planning, data-driven decision making and governance** in urban areas;
- Strengthen **coordination between relevant ministries** and i**nvesting in social determinants of health** to prevent NCDs in urban context with a multi-sectoral approach to achieve Universal Health Coverage and SDGs.

6. CONCLUSION

The rapid growth in urbanization has overwhelmed government's capacity to regulate, plan or provide health services in urban areas, especially to the poorest living in slum areas, which leads to growing disparities in health care access and outcomes. The inefficiencies in urban health services provision might be overcome by strengthening governance at both national and local levels. This would require energizing the public health mandates of Ministry of Health and local governments and ensuring coordination among implementing bodies. Health outcomes of the urban poor will depend on how well the Bangladesh government can exercise good governance and ensure accountability. Strong stewardship and commitment to strengthening systems in order to provide equitable and ethical health services for the urban poor is a crucial step towards preventing and controlling its most vulnerable populations. Through this knowledge synthesis, key knowledge and practice gap and channels for policy communications were identified to provide the government with the necessary information to address healthcare issues among urban poor, especially on NCDs.

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