Non-Communicable Diseases in Bangladesh: An Overview

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Abstract: Globally non-communicable diseases (NCDs) are attributable to 38 million deaths, three-fourth of which is caused in low- and middle-income countries. NCDs attribute to almost half of the disease burden of the adult population in South Asian countries. The increased attention had been paid on NCDs in low- and middle-income countries, the context-specificity of these NCDs are yet inadequately explored. Bangladesh, a South Asian country, and one of the most populous of the world is now dealing with an epidemiological transition from infectious diseases to the emergence of NCDs. The based on extensive literature review, article focuses on the case study of the impact of NCDs in Bangladesh. Epidemiology and impact of diseases were analyzed along with reported risk factors. Several efforts had been made in prevention and treatment of NCDs, which demonstrated both successes and challenges. The article also gives an overview of existing programs, recommends priorities going forward.

Keywords: non-communicable diseases, Bangladesh, double burden of disease

1. Introduction

Globally non-communicable diseases (NCDs) are attributable to 38 million deaths, three-fourth of which are caused in low- and middle-income countries [1]. Given that globally NCDs are the leading cause of mortality, NCDs pose disproportionate global economic burden, NCDs are largely preventable, and 16 million of these premature deaths were avoidable, NCDs prevention and control received global attention [2-4]. Although, NCDs in low- and middle-income countries received increased attention, the context-specificity of these NCDs are yet inadequately explored [5].

NCDs attribute to almost half of the disease burden of the adult population in South Asian countries [6]. Bangladesh, a South Asian country, and one of the most populous of the world is now dealing with an epidemiological transition from infectious diseases to the emergence of NCDs [6, 7].

Bangladesh is experiencing an epidemiological transition due to the rapid emergence of NCDs. With existing challenges posed by infectious diseases and malnutrition, this situation had led to a double burden of disease in this country [8]. While in 1986, NCDs were attributable to eight percent of deaths, in 2010 NCDs emerged as the leading cause of death in Bangladesh as 60.6% of all deaths were due to NCDs [8, 9]. While a previous estimate also indicate that NCDs account for 43% of the burden of disease in Bangladesh, in terms of the disability-adjusted life year (DALY), NCDs now account for 61% of the disease burden of the country [8, 10].

There is a paucity of scientific evidence in terms of NCDs in Bangladesh. However, existing data indicate that cardiovascular disease, diabetes, tobacco-related illness, chronic respiratory diseases, and cancer are the most common NCDs in Bangladesh [8, 10].

Cardiovascular diseases are one of the leading causes of premature deaths in Bangladesh [6]. A recent study indicates the dramatic increase of cardiovascular diseases in Bangladesh [11]. The findings indicate that compared to 1986 data, there was a 30-fold and 47-fold increase in deaths among rural males and females respectively due to cardiovascular disease. There is an increasing rise of diabetes in Bangladesh. Diabetes prevalence was 10% in urban population and seven percent in rural population in 2012 [10]. It is estimated that the number of people with diabetes in Bangladesh will be 4 million in 2025 [12, 13]. Tobacco use (either smoking or smokeless consumption) and related illness is on a rise in Bangladesh. Recent evidence suggests that tobacco use was one of the leading causes of premature deaths among men in Bangladesh [14].

An estimate from National Institute of Cancer Research and Hospital (NICRH), Bangladesh indicate an increase of cancer cases and cancer was
the sixth leading cause of death in 2004 [10, 15, 16]. Lung cancer was the top malignancy in men and breast cancer was the top malignancy for women [16].

2. Methods

Major scientific databases and search engines including PubMed, Web of Science and Google Scholar were used for the literature search. Technical papers, strategic plans and special publications published by national and international organizations were collected. Only literature those were published in English in last 20 years (from 1 January 1986 to 31 January 2016) on mainly focused on NCDs in Bangladesh were included for the review. It worth mentioning that there is a scarcity of scientific publications on NCDs in Bangladesh. Based on set inclusion and exclusion criteria, 23 publications were identified and thematically analyzed. Themes included: epidemiology and impact of NCDs in Bangladesh, reported risk factors, efforts for prevention and treatment of NCDs, successes and challenges in these endeavors, and possible recommendations.

3. Risk Factors for NCDs in Bangladesh

With support from the Government of Bangladesh, Bangladesh Society of Medicine and the World Health Organization (WHO) conducted a ‘national survey on non-communicable disease risk factors’ in 2010 [17]. The findings of this survey highlight the major risk factors to NCDs in Bangladesh. Results of this survey were alarming since 99% of the survey population had at least one NCD risk factor, and around 29% had more than three risk factors [10]. The risk factors include:

3.1 High Level of Tobacco Use

Smoking prevalence is high in Bangladesh. According to the survey findings, overall smoking prevalence was 26.3% and one-fourth (25%) of the respondents were daily smokers. The smoking prevalence was much higher (54.8%) among men compared to women (1.3%). This finding was similar in rural and urban settings. While most respondents initiated smoking at 18.4 years of age, around 35% of the respondents initiated smoking before 15 years of age. However, smokeless consumption of tobacco was high (31.7%), and it was especially high among women (33.6%) compared to men (29.4%).

In terms of smoking or smokeless consumption of tobacco, almost half of the male respondents reported tobacco use. Around 70% of men reported tobacco use while 34.3% women reported consuming tobacco. For NCDs, the findings of the survey indicate that the tobacco use (smoking or smokeless consumptions or in isolation) as one of the key risk factors. In addition, around half (42%) of non-smokers were either exposed to passive smoking or were exposed to smoke at the workplace, which was identified as another risk factor associated with tobacco use or smoking.

3.2 Unhealthy Dietary Habits

While the vegetable intake is high (around six days a week) among Bangladeshi population, fruit intake was found to be low (around two days a week). Combined consumption of vegetable and fruits was four days a week. Despite the high frequency of vegetable and fruit intake, the total intake of either vegetable or fruit was inadequate. More than 95% of the respondents were found not consuming adequate daily requirement (i.e. minimum daily total requirement of 5 servings). Overall 64.5 respondents reported low fruit/vegetable intake.

3.3 Low Physical Activity

Continuous ten minutes of physical movement or activity was measured physical activity for this survey. The findings show that 27% of the respondents were in ‘low physical activity category’. Women were found to be less active while work contributed to more than half of the physical activity reported by men. Although rural respondents reported being more involved physical activity, overall 33% of the respondents reported not getting involved in any physical activity and 62% of the respondents reported not getting involved in any vigorous physical activity. Physical activity was particularly low among women (3.5%) compared to men (13.9%). Such a sedentary lifestyle was reported as another risk factor to NCDs in Bangladesh.

3.4 Low Alcohol Consumption and Binge Drinkers

Around ninety-five percent respondents of the survey were found as “lifetime abstainers of alcohol” due to religious reasons. Nonetheless, out of one percent current alcohol consumers, 66.7% were found as binge drinkers. Alcohol consumption was high in urban areas.

3.5 Obesity among Women

Based on body mass index (BMI), overall 18% of the respondents were overweight (BMI ≥25.0 kg/m²). Women were found being more obese compared to men. 7.3% women were found as obese
compared to 4.4% men, and 11.3% women had abdominal obesity compared to 2.7% men. Moreover, the proportion of women who were overweight (21.6%) was higher than men (13%). In addition, 21.7% of the respondents of both sexes had central obesity. Higher prevalence of central and general obesity might put women at higher risk of NCDs.

3.6 Blood Pressure: Hypertension and Low Service Utilization

One-third (32.9%) of the respondents reported never measuring their blood pressure levels. The prevalence was measured based on self-reporting (with documents). The overall prevalence of hypertension was 12.5%, with slightly higher hypertension among women (13.9%) compared to men (10.9%). Hypertension was more prevalent in urban areas (19.9%) compared to 15.9% in rural areas. Out of the respondents reported having hypertension, 31% were on medication, and 21% hypertensive respondents did not take any medication. The findings indicate increasing trend in hypertension and low utilization of hypertension control facilities as risk factors to NCDs.

3.7 Diabetes Mellitus: Low Level of Screening and Diabetes Management

Around 83% of the respondents never measured their blood glucose levels. About four percent of the respondents reported being diagnosed to have diabetes. Among these respondents, 21% were on insulin, 61% were receiving oral antidiabetic drugs, and 18% were not seeking any medical support for diabetes management.

4. Efforts in Treatment and Prevention of NCDs: Successes and Challenges

Bangladesh had made a series of systematic efforts to ensure treatment and prevention of NCDs [18]. The country has a functioning non-communicable diseases unit under Ministry of Health and Family Welfare. Besides, national commitment can be seen in ‘strategic plan for surveillance and prevention of non-communicable diseases’, which was published in 2011. The paper on “health system preparedness for responding to the growing burden of non-communicable disease” indicates the commitment from government and politicians to ensure a successful response to NCDs [19]. In terms of health systems, one of the key strengths Bangladesh has is that physical facilities for treatment and prevention of NCDs are in place from the community to tertiary level [10].

Systematic studies are conducted by the government, World Health Organization (WHO) and non-government organizations (NGOs) to address the knowledge gap. “Non-Communicable Disease Risk Factor Survey Bangladesh 2010” can be an example, which was an outcome of a coordinated response through a public-private partnership.

In 2005, Bangladesh became one of the signatories of WHO initiative on Framework Convention on Tobacco Control (FCTC) [20]. The Parliament of Bangladesh also introduced the tobacco control law in the same year. The law was further amended in 2013 to incorporate more progressive initiatives [20]. For example, it is now mandatory for tobacco manufacturers to incorporate graphic warnings on at least 50% of the surface areas of tobacco products. Along with this, Bangladesh is involved with the Tobacco Free Initiative (TFI) of WHO and had introduced increased taxation for tobacco products to reduce tobacco consumption [20].

While there is a scope to improve service uptake from existing healthcare facilities, screening, and treatment for hypertension are available at the rural level through Upazilla (sub-district) Health Complexes (UHC). UHCs also offer services for treatment and management of diabetes mellitus. District hospitals offer support in terms of treatment and management of hypertension, cardiovascular diseases, and diabetes mellitus. The responses are led by National Heart Foundation Hospital and Research Institute, Hypertension Committee of National Heart Foundation and The Diabetic Association of Bangladesh. Seven programs are in place to promote education on NCDs at the community level [8].

Treatment of cancer is still centralized, and most of the service providers are located in the capital of Bangladesh. The responses regarding treatment of cancer is coordinated by National Cancer Institute of Bangladesh of government of Bangladesh.

Despite having different tiers of physical facilities (e.g. Upazilla Health Complexes, Union Health and Family Welfare Centres, and Community Health Care Services, district level hospitals), there is a lack of trained service providers to address the treatment and prevention of NCDs [19]. Although National Institute of Cardiovascular Disease and Bangladesh Institute of Research and Rehabilitation for Diabetes started offering short-term training for service providers, this training may not adequate to deal with the growing burden of NCDs [8]. Also, there is a scope of increasing participation from development partners and other international organizations in
government’s response to NCDs. A well-coordinated response to NCDs is much required.

Dewan Alam et al. (2013) indicated that Bangladesh has “national essential drugs policy and a list of essential drugs for use in the public health system” [19]. Nonetheless, drugs to treat NCDs have not been included either in the policy or the list of essential drugs as of 2011.

Success in tobacco control is still a challenge. A number of tobacco products (e.g. smokeless tobacco) are not under jurisdiction yet. Moreover, law enforcement to stop smoking in public spaces is yet to be achieved [21]. Findings from the 2010 NCD risk factor survey indicate high level of smoking prevalence and tobacco use even after five years of introducing anti-tobacco act [17]. This situation also warrants the need for effective execution of the act as well as the scope for revisiting the act carefully.

In terms of health economics and financing, NCDs have received least attention. Only around one percent of the budget of the Health, Population and Nutrition Sector Development Program (2011-2016) has been allocated for NCDs [22]. Such health systems financing at public sector can be counterproductive to the government’s commitment to NCD control, treatment, and management.

In addition, the findings of health systems preparedness to the growing burden of NCDs indicate another challenge in terms of lack of a coordinated response to NCDs [19]. In addition to the absence of donors, NGOs and private service providers in government initiatives, Bangladesh is yet to build a sustainable strategy to deal with growing burden of NCDs through a multi-sectoral approach. Failure to address these may lead to a disproportionate burden of NCDs among the poor and may pose further challenges to ensure equitable access to health care facilities and to achieving universal coverage. In this context, Dewan Alam et al. (2013) advocated for a health systems reform incorporating donors, NGOs in a systematic response to NCDs in Bangladesh [19].

5. Conclusion and Ways Forward

With the emergence of non-communicable diseases (NCDs), Bangladesh is now facing a double burden of disease. Not only the disease burden, but NCDs might also pose a serious economic burden to a low middle-income country like Bangladesh and the health system. Ensuring equitable health services for around 153 million people in the context of emerging NCDs is a major challenge for Bangladesh for the next decade.

It is important for Bangladesh to focus on five key areas:

- Bangladesh already has physical facilities from community level to tertiary level. Therefore, based on existing evidence, a major focus should be on health systems strengthening and capacity building of service providers. Capacity building of service providers at primary healthcare facilities, ensure an effective referral system for NCD treatment and management to tertiary healthcare to reduce the disease progression, and provision for education on NCDs at community level are important. Initiating a consistent population-level awareness campaign to prevent the NCDs can be an effective strategy [23].

- Also, a well-designed program and coordinated multi-sectoral response to NCDs is a must to ensure treatment and control of NCDs. Besides ensuring focused response to NCDs in Bangladesh, such response is important to focus on identify funding gaps and to reduce vertical funding and overlapping of activities from different donor organizations. Again, a coordinated response over the next decade will be helpful for the government to identify gaps in health systems financing in existing program for treatment, prevention, and control of NCDs.

- Tobacco control is still a challenge for Bangladesh. Specific focus should be given on tobacco control related activities over the next decade.

- In addition, alignment of policy to the strategic response to NCDs will be another important area to deal with NCDs. Derek Yach (2004) advocated for ensuring three policy layers for address the impact of NCDs, “elevating chronic diseases on the health agenda of key policymakers, providing them with better evidence about risk factor control, and persuading them of the need for health systems change” [3]. Bangladesh can be benefited from this proposition while aligning policy for NCDs with the implementation strategy.

- Finally, focusing on research to ensure evidence-informed response to NCDs would be vital. Rather than relying on experience of developed worlds on NCDs, research of context specificity of NCDs in Bangladesh would be important. Moreover, continuous monitoring and evaluation of existing activities and incorporating the “lessons learnt” in redesigning future responses to NCDs can make a difference.
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7. References