

chronic disease news

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Editorial



Dear Readers,

Welcome to the 2nd issue of Chronic Disease News in which we will share the latest on our project activities and the current chronic disease situation in Bangladesh. We have designed this issue with some of the recent findings on burden of chronic diseases in the rural settings of the country.

The last few months have seen an increase in activity for the researchers in the Centre for Control of Chronic Diseases in Bangladesh (CCCDB).

In July we began our contract with the National Heart, Lung and Blood Institute from the USA (NHLBI), described elsewhere in this issue. Other projects include a continuation of our extensive risk factors study, the results of which will appear in the next newsletter. Our studies are designed to assess the current burden of different non-communicable chronic diseases and their risk factors. We aim at strengthening the evidence for policy formulation through these study results and developing appropriate programmes for the communities.

We have held seminars including one with collaborative partners from the South Asia Network for Chronic Disease (SANCD) in India. We have a number of new projects under development both in the areas of research and education, the list is too extensive for this small space.

This issue of the newsletter will highlight the burden of stroke and paralysis in two rural field sites and also the risk of prevalence of metabolic syndrome among the females in another rural setting in Bangladesh. The issue will also introduce you to the partners in the consortium—The Centre for Control of Chronic Diseases in Bangladesh and provide a glimpse of our activities.

Enjoy this issue of the Chronic Disease News.

Alejandro Cravioto
Executive Director, ICDDR,B

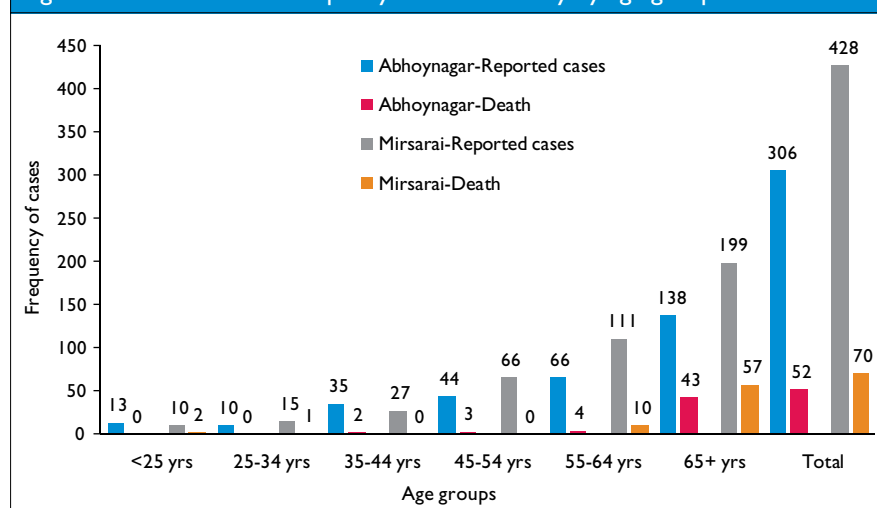
Burden of disabilities from stroke or paralysis in two rural areas of Bangladesh

Non-communicable chronic diseases (NCDs) such as heart disease, stroke, diabetes, cancer, and chronic obstructive pulmonary disease (COPD), have become the leading cause of morbidity, mortality and disability worldwide. Published evidences in World Health Organization Report for the year 2002 show that NCDs accounts for almost 60% of deaths and 46% of the global burden of disease and continuation of current trend will account for 73% of deaths and 60% of disease burden in 2020. The effect of Cerebrovascular Disease (CVD), particularly consequence of disabilities resulting from stroke on the survivors brings immense mental sufferings for the survivors in performing their daily activities of living, imposes financial and mental burden on their families and causes mortality. Stroke often requires clinical definition and diagnostic

support which are not easily available in the rural settings of low and middle income countries. Population based information on major causal risk factors for NCDs, disability due to paralysis in low and middle-income countries and its magnitude for Bangladesh is either limited or not available.

The availability of the Health and Demographic Surveillance System (HDSS) infrastructure of ICDDR,B in Abhoynagar sub-district in the south western Bangladesh since 1983 and in Mirsarai sub-district in southern Bangladesh since 1995 provides a unique platform for longitudinal assessment of population-based burden of NCDs. In addition to demographic events, information on causes of death through verbal autopsy using the 10th version of the International Classification of Diseases (ICD-10) is collected in these HDSS sites.

Figure: Prevalence of stroke/paralysis and mortality by age group 2006-2009





Sufia Khatun (60) had been suffering from asthma and was diagnosed with hypertension five years ago. She had a stroke three years ago. She cannot move, take food and speak clearly following the stroke and the right side of her body is paralyzed. Sufia has to depend on her three daughters-in-law for daily activities of living

To monitor utilization of public sector health services in these two HDSS sites, ICDDR,B also introduced health care utilization for any reported medical problems within the past two weeks along with collection of demographic events since October 2006 in the HDSS round. During each quarterly HDSS round the head of households were asked whether,

- Any member of the household had any illness in past two weeks,
- Any drugs were used or purchased for any member of the household for any reason, and
- What kind of practitioner was consulted for which medical problem?

The reported medical problems were coded following the disease category used to determine causes of death following the ICD-10. The observation opportunity of HDSS data collectors and supervisors four times in a year also confirms reported number of stroke/paralysis. In 2009, the mid year HDSS population of

Abhoynagar was 34,519 and 39,020 in Mirsarai. There are minor variations between the two populations. The population age 25 years and above was 53% in Abhoynagar and 47% in Mirsarai while the proportion of females was 49% in Abhoynagar and 55% in Mirsarai. Health care utilization data in the HDSS database from October 2006 to June 2009 reveals, there were 306 people (180 men and 126 women) aged 25 years or above in Abhoynagar and 428 (216 men and 212 women) in Mirsarai had stroke/paralysis. The calculated rate of stroke/paralysis among people of 25 years of age or more in Abhoynagar was 16/1,000 and 21/1,000 population in Mirsarai. Overall, proportion of men was higher and people in 45-54, 55-64 years age group and over 65 years of age were more vulnerable in both HDSS sites. There were 52 deaths in Abhoynagar and 70 in Mirsarai among these people recorded in the HDSS data base. The proportion of deaths was higher among male (60%) in Abhoynagar and higher among

female (61%) in Mirsarai and this pattern was similar across all age groups in both the HDSS sites. The case fatality ratio of stroke/paralysis was 11.6 in Abhoynagar and 15.6 in Mirsarai. The reason for higher proportion of deaths among men in Abhoynagar and case fatality ratio of stroke/paralysis and deaths among female in Mirsarai requires more investigation.

The first reported and recorded event of stroke/paralysis in past two weeks in the HDSS database showed that only 9% people did not consult any practitioner, 45% consulted unqualified practitioner and 46% consulted a qualified practitioner in Abhoynagar. In Mirsarai, 6% did not consult any practitioner, 40% consulted unqualified practitioner and 54% consulted qualified practitioner.

Limited analysis of population-based information on disabilities resulting from stroke/paralysis provides some impression of the magnitude of the problem in two rural areas, may not be representative of rural Bangladesh. However, the demonstrated strength and opportunity of HDSS in monitoring population based burden of NCDs is evident and information on other demographic and socio-economic characteristics including household assets available in the HDSS database permits detail analysis of the consequence of stroke/paralysis on Disability Adjusted Life Years (DALY), Quality Adjusted Life Years (QUALY) and vulnerability by wealth quintile in the near future to produce evidence for the national health system by CCCDB.

Introduction to the CCCDB Partners

The Centre for Control of Chronic Diseases in Bangladesh (CCCDB) is a partnership between the International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B), BRAC, Johns Hopkins Bloomberg School of Public Health (JHSPH) and the Institute of Development Studies (IDS). Initial funding for the consortium came from the UnitedHealth Group from the USA and more recently from the U.S. National Institutes of Health, National Heart, Lung, and Blood Institute (NHLBI). The programme secretariat is based at ICDDR,B. A brief introduction to the core partners is given below:

The International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B)

ICDDR,B is an international health research institution located in Dhaka, the capital of Bangladesh. With the changing trend in the world scenario in health and population over the years, ICDDR,B has expanded its activities to address some of the most critical global health needs. In collaboration with partners from academic and research institutions throughout the world, the Centre conducts research, training and extension activities as well as programme-based activities. ICDDR,B is leading the activities for achieving the goals of assessment of current burden of chronic disease, assessing risk factors and understanding the links between chronic illness at the

household level and the health system response in Bangladesh as well as knowledge translation in Bangladesh.

BRAC, Bangladesh

BRAC works with people whose lives are dominated by extreme poverty, illiteracy, disease and other handicaps. With multifaceted development interventions, BRAC strives to bring about positive changes in the quality of life of the poor people of Bangladesh. Headquartered at Mohakhali in Dhaka, BRAC works to combat poverty in 70,000 villages and 2000 slums in Bangladesh, and reaches three quarters of the entire population with an integrated package of services for rural and urban communities. Being international, BRAC is the largest southern NGO that reaches more than 110 million people with its development interventions in Asia and Africa. In addition to serving as an implementing partner, through the James P. Grant School of Public Health at BRAC University, BRAC is playing a key role in achieving the educational objectives of the CCCDB.

Johns Hopkins Bloomberg School of Public Health, Baltimore, USA

Johns Hopkins Bloomberg School of Public Health, (JHSPH) is dedicated to the education of a diverse group of research scientists and public health professionals, a process

inseparably linked to the discovery and application of new knowledge, and through these activities, to the improvement of health and prevention of disease and disability around the world. JHSPH is leading on the work on synthesizing existing knowledge of gaps in chronic disease in South Asia and in understanding how chronic illness and poverty relate to one another over time in rural Bangladesh.

Institute of Development Studies, Brighton, UK

The Institute of Development Studies (IDS) is an international centre of excellence in multidisciplinary research, teaching, communications, capacity building and practice of international development. It is based at the University of Sussex in Brighton, UK. In all its work, IDS aims to challenge convention and to generate fresh ideas that foster new approaches to development policy and practice. Such problem-focused thinking requires a commitment to multidisciplinary, and international partnerships across research, teaching and communications. IDS supports research design, which links chronic diseases to health systems and development issues such as poverty reduction. As an international leader in provision of information services for development with links to governments, international organizations, research institutes and advocacy groups, IDS also supports the programme's communications activities.

Are women at greater risk of metabolic syndrome than men?—findings from rural Bangladesh

Metabolic syndrome is a strong predictor of cardiovascular disease and is associated with increased risk of CVD mortality. Population based data on the prevalence of metabolic syndrome is seldom available for rural Bangladesh.

ICDDR,B researchers conducted a study to measure the prevalence and determinants of metabolic syndrome in relatively younger adults in a rural area of Bangladesh – Matlab. The study population was between 27-50 years of age. Five hundred seventeen randomly selected men (229) and women (288) from the Health and Demographic Surveillance System (HDSS) of Matlab participated in the study. They measured waist circumference (WC), blood pressure (BP), plasma glucose (fasting and 2 h after 75 g glucose challenge), fasting triglyceride (TG) and high density lipoprotein cholesterol (HDL-C) of the participants.

Each metabolic syndrome variable was defined using criteria set by International Diabetes Federation (IDF).

Metabolic syndrome was defined as concurrent presence of abdominal obesity (WC \geq 90 cm in men and \geq 80 cm in women) and any two of the other four variables high TG (\geq 1.7 mmol/L), low HDL ($<$ 1.03 mmol/L in men and 1.29 mmol/L in women), high blood pressure (systolic \geq 130 or diastolic \geq 85 mmHg), and abnormal glucose (known diabetic or impaired fasting glucose or impaired glucose tolerance) were defined as metabolic syndrome.

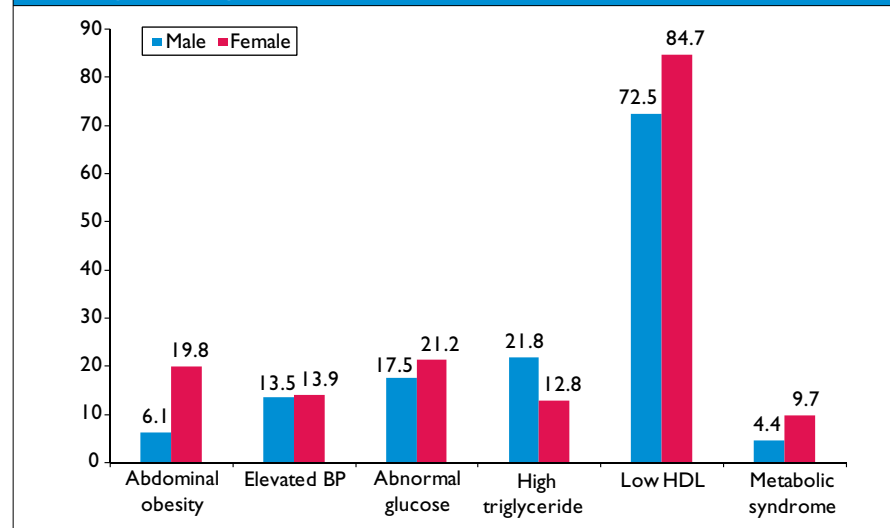
Results show that the average age of participants was 37 years with an average body mass index (BMI) of 20.4 kg/m². Overall prevalence of high WC, high TG, low HDL, high BP, and abnormal glucose were present among 13.7%, 16.8%, 79.3%, 13.7%, and 19.5% of the individuals, respectively.

The study findings also show that women had significantly higher prevalence of abdominal obesity (19.8% vs 6.1%; $p=0.000$)

After adjusting for potential confounding variables, age, sex and education were significantly associated with the risk of metabolic syndrome.

This study held in a rural area of Bangladesh shows that components of metabolic syndrome are widely prevalent even among a non-obese relatively young adult population in rural Bangladesh. Metabolic syndrome, which is considered to be a strong

Figure: Prevalence of components of metabolic syndrome in men and women aged 27-50 yrs in Matlab



and of low HDL (84.7 vs 72.5%; $p=0.005$) than men. On the other hand, men had higher prevalence of TG (21.8% vs 12.8%, $p=0.007$) than women. No difference in the prevalence of high BP was observed between gender however, abnormal glucose tended to be higher in the women than men (21.2 vs 17.5; $p=0.172$).

Metabolic syndrome was prevalent among 7.4% of the participants, but prevalence was higher among women than men (9.7% vs 4.4%; $p=0.014$).

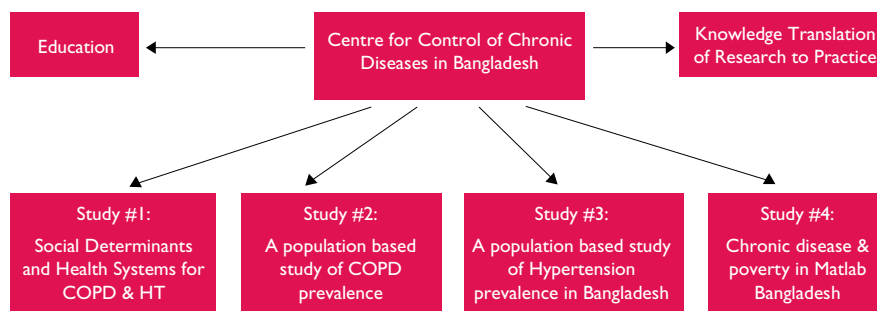
risk factor for cardiovascular diseases and diabetes, also affects significant proportion of the population where females are at greater risk than males. As women have been found to be at a greater risk than men in Matlab, further investigation is needed to identify factors associated greater susceptibility of women in this population so that a plan of action can be developed to prevent chronic illness in the population.

Working with the US National Heart, Lung and Blood Institute

In July 2009, the Centre for Control of Chronic Diseases began a five year partnership with the National Heart, Lung and Blood Institute of the National Institutes for Health in the United States. This collaboration will allow the CCCDB to pursue three of its core goals: research, education and knowledge translation.

In the area of research, four studies will build upon the strength of rural and urban surveillance sites in Bangladesh. The studies will focus on chronic obstructive pulmonary disease (COPD) and hypertension (HT), and the links between illness and poverty, including household and health systems response to these diseases.

In the area of education, a Master of Public Health Plus has been



developed to award a Certificate of Applied Methodology through the James P. Grant School of Public Health at BRAC University. This programme will give students the chance to work with researchers in the CCCDB and to take classes to learn more about chronic disease epidemiology and programmes in South Asia as well as develop greater skills in biostatistics and managing complex data sets. In 2012, this set of

courses will be incorporated in the forthcoming doctoral programme offered by the School of Public Health.

The knowledge produced by CCCDB will be shared widely in Bangladesh with policy makers, healthcare providers and civil society members through a variety of dissemination tools including policy briefs, working papers, scientific journal articles and this newsletter.



Dr Soumik Kalita, Associate Professor and Dr Vipin Gupta, Research Fellow of the South Asia Network for Chronic Disease, made presentations in a scientific seminar during their visit to the Centre for Control of Chronic Diseases in Bangladesh in October 2009. Introducing SANCD to the audience Dr Kalita discussed the aims of SANCD, road blocks to progress in prevention and control of chronic diseases, and approaches of their centre, features of the network, study designs along with the interventions for managing chronic diseases and the expected output for the next five years. Dr Gupta spoke about a Disease Association Study of Genetic Markers Related to Type 2 Diabetes.

For further information or queries about this project and for feedback on this newsletter, please contact:

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