1st
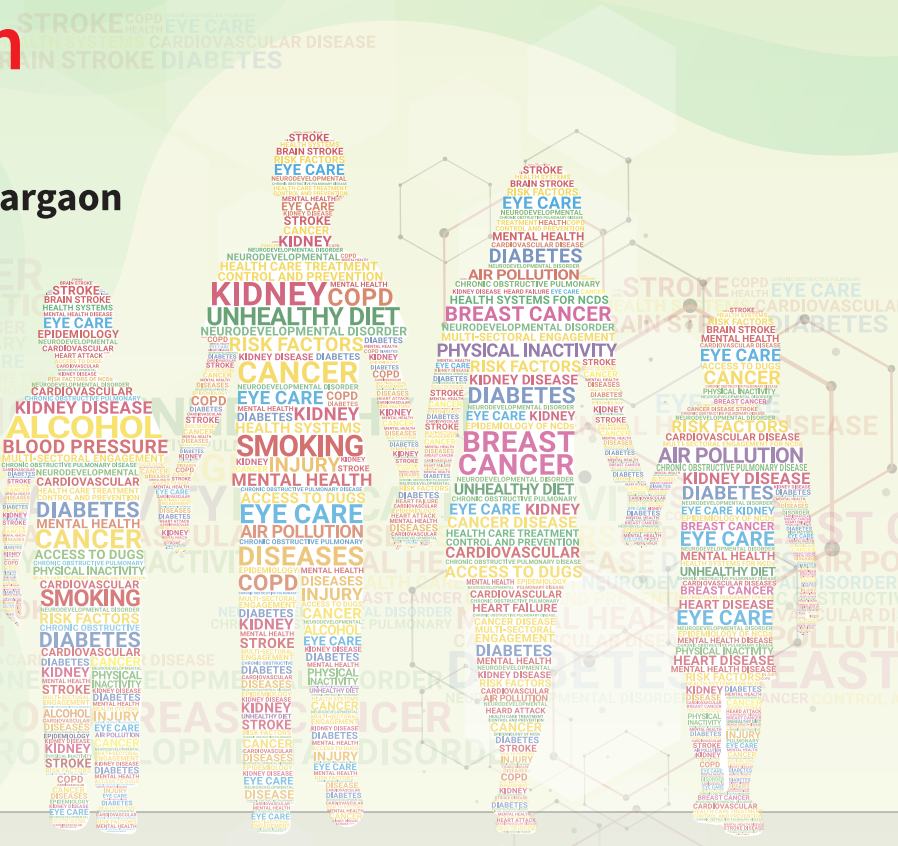# NATIONAL NCDs CONFERENCE
Bangladesh

📅 26-28 January 2022

📍 Hotel Pan Pacific Sonargaon Dhaka, Bangladesh

#ncdconf–BD2022

Organizer:

NCDC

বাংলাদেশ হেলথ রিপোর্টার্স ফোরাম
Bangladesh Health Reporters' Forum

Partners:

icddr,b · CIPRB evidence for quality life · BRAC SCHOOL OF PUBLIC HEALTH JAMES P GRANT · WaterAid · orbis · DocTime · UNFPA · unicef সকল শিশুর জন্য · HEU · OGSB

NIKDU · BUHS · PHF Public Health Foundation Bangladesh · UNIVERSAL MEDICAL COLLEGE & HOSPITAL LTD. · Public Health Association of Bangladesh · TRAUMA CENTER A Specialized Orthopedic Hospital & Diagnostic Center · ark foundation · দেশের জন্য

Daffodil International University · BANGLADESH ASSOCIATION OF PSYCHIATRISTS (BAP) · NORTHERN UNIVERSITY · NCD Alliance · WORLD HEART FEDERATION · International Diabetes Federation · uicc · WORLD OBESITY

Secretariat:

eminence
associates for social development

1st NATIONAL NCDs CONFERENCE
Bangladesh

Thematic Areas:
✚ *Epidemiology of NCDs,* ✚ *Health Systems and NCDs,*
✚ *Current Best Practices and Innovation for Prevention and Control of NCDs,*
✚ *Multisectoral Engagement for NCDs*

26-28 January 2022 | Hotel Pan Pacific Sonargaon, Dhaka, Bangladesh

Organizer:

Partners:

Partners:

PREFACE

Both science and technologies contribue greatly to positive socio-economic advancement in both the developed and the developing countries. The value of research in identifying social, behavioural and biomedical challenges for innovations are integral part of the problem solving paradigm for human health. Since health research promotes health benefit for the human population it is an ethical obligation of a researcher to conduct a research ethically, and disseminate the research outcome to a wider community, so that findings or solutions are brought to communities for using the new information for whom a research has been done. As such, research is a public good and the benefit of sharing new knowledge derived from a research goes beyond the reach of the research community or a country where the research is conducted.

The objective of the 1st National NCDs Conference Bangladesh held on 26-28 January 2022 at Pan Pacific Sonargaon Hotel in Dhaka is to present new knowledge of emerging problems related to Non Communicable Diseases generated from health research in Bangladesh, and give directions to the best solutions, particularly during the COVID-19 pandemic before a broader range of stakeholders, including the patient community. Despite a short timeframe and extreme uncertainties of the COVID-19 pandemic we have received enormous responses from the clinicians and health researchers in Bangladesh to our call for abstracts. We have heard from ~200 researchers, and tried our best to accommodate good research works across a wide range of disciplines for publishing them in the 1st National NCDs Conference Bangladesh abstract book that we proudly present to you.

The abstracts presented in the book have been reviewed by a Jury Board comprised of eminent scientists, clinicians and researchers in Bangladesh. Each abstract was independently reviewed and scored by two senior members along with a mid level researcher following a pre determined scoring criteria set by the Jury Board. As per the decision of the Jury Board, 32 abstracts have been selected for oral presentations, 30 abstracts for poster presentations, 12 abstracts were not considered for presentation, but included in the book as per judgements of the learned Jury Board. More than 50 abstracts were excluded during the initial screening and many good abstracts were decline for a review since received after the submission deadline. However, our mission on dissemination new research knowledge presented in the conference would not be limited to the abstract book in the scientific sessions, but extend to facilitation of continued improvement of the quality of research, analysis and writing of the potential research identified by the Jury Board in order to publishing them in peer reviewed journals.

As the Member Secretary of the Scientific Committee, I convey heartfelt gratitude to the esteemed members of the Scientific Committee and the Jury Board for their dedicated support with selecting good research from a huge collection of abstracts for presentation in the scientific sessions. I would also like to convey my heartfelt thanks to the members of the Shadow Scientific Committee for their valuable insights for helping us decision making, and finally the publishing committee for their hard work with designing and publishing the Abstract Book of the 1st National NCDs Conference Bangladesh-2022 within a very short time.

Thank you.

Aliya Naheed
Scientist & Head Initiative for Non Communicable Diseases, icddr,b
Member Secretary, Scientific Commmittee 1st National NCDs Conference Bangladesh -2022
Convneor Clinical Research Platform, Bangladesh

CONTENTS

CONFERENCE
OBJECTIVES

People living with NCDs must be active protagonists to the global and national NCD responses in shaping their own health. Besides, with more than 160 million people, Bangladesh is witnessing an increase in the number of people living with NCDs. Being one of the leading causes of death and disabilities, NCDs are contributing 67% (NCD Country Profile, 2018) to the total number of deaths in Bangladesh. Besides, the chronic nature of NCDs extends both patient's experience of suffering and duration of treatment, creating a high economic burden on them. National NCD Conference is being organized to reflect on the issues that are fueling NCDs and its risk factors, and to integrate commitments to Act-on-NCDs. The agenda will explore multisectoral and community engagement, including critical issues relating to gender. On this note this conference will be organized to achieve following objectives,

- To share knowledge and update on NCDs in Bangladesh and globally
- To exchange views and promote global charter on PLWNCDs in Bangladesh
- To ensure scientific publication of the NCDs related research activities in Bangladesh
- To exchange views on the progress of NCDs related multi-sectoral action plan in Bangladesh
- To develop an opportunity for individual networking among the researcher, academicians, policymakers and others
- To gather recommendations for a strong partnership among government, private sector, NGOs and CSOs for NCDs in Bangladesh
- To explore the scopes of NCDs related research and surveillance activities and develop a NCDs research and surveillance for Bangladesh

CONFERENCE THEMES

Theme 1:
Epidemiology of NCDs

Subthemes:
- Cardiovascular Diseases and Hypertension
- Cancer
- Chronic Kidney Diseases
- COPD and Other Respiratory Diseases
- Diabetes, Endocrine and Metabolic Disorder
- Injury
- Mental Health and neurodevelopmental disorders
- Musculoskeletal Disorders
- Risk factor of NCDs
- Stroke and other chronic neurological disorder

Theme 2:
Health Systems and NCDs

Subthemes:
- Subthemes
- Service delivery
- Health workforce
- Health information systems
- Access to essential medicine
- Health economics
- Universal Health Coverage

Theme 3:
Current best practices and innovation for prevention and control of NCDs

Subthemes:
- Digital health and new technologies in NCDs
- Gender equity
- Capacity building for NCD research
- Health policy
- Health promotion

Theme 4:
Health Systems and NCDs

Subthemes:
- Multisectoral Engagement for NCDs
- Role of the government agencies and ministries
- NCD Stakeholders and community engagement
- NCD policies
- Youth engagement
- Role of media

CONFERENCE
COMMITTEE

CONFERENCE ORGANIZING COMMITTEE

Prof. Dr. Shah Monir Hossain
Convener - 1

Prof. Dr. Md. Sharfuddin Ahmed
Convener - 2

Prof. Dr. Mohammad Robed Amin
Convener - 3

Dr. Aliya Naheed
Co-Convener - 1

Prof. Dr. Abdul Wadud Chowdhury
Co-Convener - 2

Prof. Dr. Ahmedul Kabir
Co-Convener - 3

Dr. Md. Shamim Hayder Talukder
Member Secretary - 1

Dr. Abdun Nur Tushar
Member Secretary - 2

Dr. Mahfuzar Rahman
Member

Dr. Taufique Joardar
Member

Prof. Dr. Dipak Kumar Mitra
Member

Dr. Helal Uddin Ahmed
Member

Prof. Dr. S M Saidur Rahman Mashreky
Member

Dr. Shahjada Selim
Member

Dr. Malay Kanti Mridha
Member

Dr. Bishjit Bhowmik
Member

Dr. Mosaddek Tushar
Member

Dr. Shahin Akter
Member

Farihin Sultana
Member

Nantu Chakma
Member

Dr. Mir Nabila Ashraf
Member

Mostafizur Rahman Tushar
Member

Mohammad Imam Hossain Chowdhury Member

Kazi Moksedur Rahman
Member

AKM Maksud
Member

CONFERENCE SUB-COMMITTEES

◼ Scientific Sub-committee:

Prof. Ridwanur Rahman
Chairman

Dr. Aliya Naheed
Member Secretary

Prof. MA Faiz
Member

Prof. Dr. Mohammad Robed Amin
Member

Dr. Shams El Areefin
Member

Dr. Malay Kanti Mridha
Member

Prof. Dr. Mohd. Zahid Hussain
Member

Dr. Shamim Talukder
Member

Prof. Sharmeenn Yesmeen
Member

Dr. Nizam Uddin Ahmed
Member

Dr. Md. Sarowar Uddin Milon
Member

Dr. Tushar Mahmood
Member

Prof. Sk Zinnat Ara Nasreen
Member

Dr. Fariha Haseen
Member

Dr. Mithila Faruque
Member

◼ Program and Publication Sub-Committee

Prof. Dr. Abdul Wadud Chowdhury
Chairman

Dr. Abdun Noor Tushar
Member Secretary

Dr. Shaikh Abdullah Al Mamun
Member

Prof. Mohammad Mainul Islam
Member

Prof. Dr. Jahan Ara Khanam
Member

Dr. Helal Uddin Ahmed
Member

Dr. Emdadul Haque
Member

Dr. Towfique Joarder
Member

Dr. Shamim Talukder
Member

Dr. Romen Raihan
Member

AM Mohammed Alauddin
Member

Md Ziaul Matin
Member

Dr. Md. Tajuddin Sikder
Member

Award Selection Sub-Committee

Prof. Dr. Quazi Tarikul Islam
Chairman

Prof. Dr. S M Saidur Rahman Mashreky
Member Secretary

Prof. Dr. Sanowar Hossain
Member

Prof. Dr. Abdul Wadud Chowdhury
Member

Prof. Dr. Ahmedul Kabir
Member

Prof. A B M Abdul Hannan
Member

Dr. Makhduma Nargis
Member

Dr. Abu Jamil Faisel
Member

Kazi Moksedur Rahman
Member

Zahirul Islam
Member

Prof. Dr. Ferdoushi Begum
Member

Bulbul Ahmed
Member

Dr. SM Mostafizur Rahman
Member

Dr. Nusaer Chowdury
Member

Dr. Farzana Dorin
Member

Finance Sub-Committee

Dr. AKM Zafar Ullah
Chairman

Dr. ShahJada Selim
Member Secretary

Dr. Shahin Akter
Member

Dr. Munir Ahmed
Member

Dr. MA Sabur
Member

Dr. Tajul Islam
Member

Dr. Syed Hossain Shahin
Member

Mr. AKM Maksud
Member

Nesar Uddin Ahmed
Member

Dr. Samiya Mahmood
Member

Dr. Md. Abul Hasem Sheikh
Member

Dr. Shafiqul Islam
Member

Registration and Reception Sub-Committee

Prof. Faruq Pathan
Chairman

Prof. Dr. Qazi Mushtaq Hussain
Member Secretary

Dr. Bishjit Bhowmik
Member

Dr. Mir Nabila Ashraf
Member

Dr. Mosaddek Tushar
Member

Prof. Dr. Dipak Kumar Mitra
Member

Prof. Dr. MA Sayeed
Member

Nantu Chakma
Member

Riad Mahmud
Member

Dr. Maruf Ahmed Khan
Member

Dr. Rahat Iqbal Chowdury
Member

Dr. Margub Aref Jahangir
Member

Dr. ABM Alauddin Chowdhury
Member

JURY PANEL

Professor Sajal Krishna Banerjee
Professor of University Grant Commission

Professor Dr. Shaheen Akhter
Dean Faculty of Pediatrics
Director, IPNA, BSMMU

Prof. Dr. Abdul Wadud Chowdhury
Professor
Department of Cardiology
Dhaka medical college Hospital

Professor Harisul Haque
Department of Cardiology
BSMMU

Professor Md. Nazrul Islam
Chairman
Department of Rheumatology
BSMMU

Professor Dr. Ferdoushi Begum
President OGSB

Professor Sharmeenn Yesmeen
Department of Community Medicine
Bangladesh Medical College

Professor Sk Zinnat Ara Nasreen
Scientific Secretary, OGSB

Professor Dr. Malay Kanti Mridha
Professor
BRAC James P Grant School of Public Health
BRAC University

Dr. Fariha Haseen
Associate Professor
Department of Public Health and Informatics (DPHI),
BSMMU

Dr. Mithila Faruque
Associate Professor
Bangladesh University of Health Science

Dr. Bishjit Bhowmik
Project Director
Diabetes Association of Bangladesh (DAB)

Dr. Towfique Joarder
Consultant, Health Workforce
WHO

Dr. Shahin Akter
Technical Director
Eminence Associates for Social Development

MID-LEVEL JURY PANEL

Dr. M. Tasdik Hasan
PhD Fellow
Department of Human Centred Computing,
Faculty of Information Technology, Monash
University, Melbourne, Australia, Assistant
Professor, Department of Public Health, State
University of Bangladesh, Dhaka, Bangladesh,
Executive Committee Member, Public Health
Foundation of Bangladesh (PHFBD)

Monaemul Islam Sizear
Organizing Secretary
Public Health Foundation of Bangladesh (PHFBD),
Senior Program Analyst, Think Well Global

Md. Golam Rabbani
Treasurer
Public Health Foundation, Bangladesh, Research
Officer, Health Economics and Financing, Health
Systems and Population Studies Division, icddr,b

Dr. Mohammad Jahid Hasan
Executive Director
Pi research consultancy center, Member, Public
Health Foundation of Bangladesh (PHFBD)

Dr. Nabilah Ibnat Baby
Research Investigator
Health Systems and Population Studies Division,
icddr,b

DR. Sifat Parveen Sheikh
Research Investigator
Health Systems and Population Studies Division,
icddr,b

Dr. Noshin Farzana
Research Investigator
Health Systems and Population Studies Division,
icddr,b

Saimul Islam
Research Investigator
Health Systems and Population Studies Division,
icddr,b

Dr. Ammatul Ferdousi
Research Investigator
Health Systems and Population Studies Division,
icddr,b

Nantu Chakma
Senior Research Officer, Health Systems and
Population Studies Division, icddr,b

Dr. Mir Nabila Ashraf
Senior Research Officer, Health Systems and
Population Studies Division, icddr,b

AWARDS FOR CONTRIBUTING TO THE FIELD OF NCDs

LIFETIME CONTRIBUTION AWARD

National Professor Brig Gen (Rtd) MA Malik
Founder & President, National
Heart Foundation Hospital
And Research Institute

Professor Syed Mokarram Ali
Managing Director, Delta
Hospital Limited
Chief Consultant, Department
of Pathology

Professor Quazi Deen Mohammed
Director, National Institute of
Neurosciences &
Hospital

Professor Sadika Tahira Khanom
Bangladesh Association for
Maternal & Neonatal
Health (BAMANEH)

Professor Dr. Haurn Ur Rashid
Chairman Kidney Foundation
Hospital &
Research Institute

Professor MN Alam
Professor of Medicine
Samorita Hospital

LIFETIME POSTHUMOUS AWARD

National Professor Mohammad Ibrahim
(1911 – 6 September 1989)
Founder of the Bangladesh Institute of Research and Rehabilitation in Diabetes, Endocrine and Metabolic Disorders (BIRDEM)

National Professor Nurul Islam
(1 April 1928 –24 January 2013)
Founder of the Institute of Postgraduate Medicine Research (IPGMR) and University of Science and Technology Chittagong

Professor Johora Begum Qazi
15 October 1912 – 7 November 2007
First Bengali Muslim Female Physician of Bangladesh

Professor SGM Chowdhury
Professor of Medicine

Prof. Nazimudowla Chowdhury
30 September 1929 - 25 September 2014
Founder President, Bangladesh Association of Psychiatrists
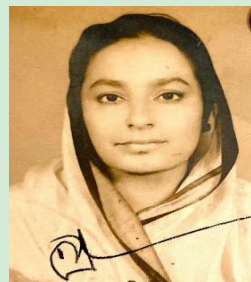
Dr. Monowara Binte Rahman
18 July 1931-3 October 1998
Ex-Director General, Directorate General of Health Services

ABSTRACTS FROM INTERNATIONAL SPEAKERS

Key Issues Surrounding the Management of Patients with NCDs Including Diabetes Mellitus Among LMICs Focusing on Bangladesh

Brian Godman[1], Farhana Akter[2], Mainul Haque[3]

Strathclyde Institute of Pharmacy and Biomedical Sciences, University of Strathclyde, Glasgow, United Kingdom; Centre of Medical and Bio-allied Health Sciences Research, Ajman University, Ajman, United Arab Emirates; School of Pharmacy, Sefako Makgatho Health Sciences University, Pretoria, South Africa[1]; Department of Endocrinology, Chittagong Medical College, Bangladesh [3]Unit of Pharmacology, Faculty of Medicine and Defence Health, Universiti Pertahanan Nasional Malaysia (National Defence University of Malaysia), Kem Sungai, Besi, 57000 Kuala Lumpur, Malaysia[2]

Introduction: There has been a continual increase in the prevalence of non-communicable diseases (NCDs) globally especially among low- and middle-income countries (LMICs).

Methods and Results: As a result, even in sub-Saharan Africa, the number of people dying from cardiovascular diseases and diabetes now exceeds those from infectious diseases. This is a concern as growing prevalence rates increase morbidity, mortality and health related costs, with complications having an appreciable impact especially in patients with diabetes. In Bangladesh, there are approximately 8.4 million with diabetes, expected to rise to 16.8 million by 2030 unless addressed. Alongside this, deaths from NCDs have increased from 43.4% of total deaths in 2000 to 66.9% in 2015. This growth is further exacerbated by lockdown measures introduced to control COVID-19. Other factors increasing NCD prevalence rates include access to diagnosis and effective management impacted by high co-payment levels, urbanisation and changing lifestyles. Encouragingly, the Government in Bangladesh has launched many NCD-related programmes to improve care. However, there are concerns with available facilities and follow-up with limited ICT resources to routinely track patient care including medication adherence. In a recent pilot study among public hospitals in Bangladesh, which is being expanded, there was poor control of blood glucose levels and a considerable number of missing knowledge gaps in patients' records. Encouragingly, there was better control of BP and lipids.

Conclusion: These findings and their implications, along with early findings from the expanded study, will be discussed to direct future planning. These include calls for increased ICT support to monitor patient care, improved diagnostic facilities including potentially community pharmacies, strategies to reduce co-payments which can be considerable, as well as educational programmes to improve adherence to lifestyle changes and prescribed medicines. Early detection, screening, treatment, as well as palliative care, are key issues to combat NCDs and should be introduced to improve future care.

Keywords: Developing Countries; Diabetes Mellitus; Noncommunicable Diseases

Ultra-Processed Food Consumption Associated with Incident Hypertension Among Chinese Adults-Results from China Health and Nutrition Survey 1997-2015

Ming Li[1], Zumin Shi[2]

Centre for Population Health Research, Division of Health Sciences, University of South Australia, Adelaide, South Australia, Australia; [2] *Human Nutrition Department, College of Health Sciences, QU Health, Qatar University, Doha, Qatar*[1]

Introduction: Ultra-processed food (UPF) has been shown to increase the risk of mortality. No study has examined its association with hypertension in China. We aimed to determine the association between UPF intake based on the NOVA classification and the risk of hypertension during 1997-2015.

Methods: Data from 15,054 adults aged $\geq$20 years (47.4% males) attending the China Nutrition and Health Survey (CNHS) were used. Food intake at each survey was assessed by a 3-day 24-hour dietary recall and weighed food record method between 1997-2011. Cox regression was used to assess the association.

Results: During a mean 9.5 years (SD 5.5) of follow up, 4,329 hypertension incident cases were identified. The incident rates (per 1000) for non-consumers, 1-49, 50-99, and $\geq$100g/day of UPF intake were 29.5, 29.5, 33.4, and 36.3. Compared with non-consumers, the hazard ratios (95% CI) were 1.00 (0.90-1.12), 1.17 (1.04-1.33), and 1.20 (1.06-1.35), respectively (P = 0.001) after adjusting for potential confounding factors. There was a significant interaction between UPF intake and age with a higher risk in the younger group (<40 years) than in the older one.

Conclusion: UPF consumption was dose-responsively associated with increased risk of hypertension among Chinese adults, especially in the younger group. Healthy dietary patterns with less UPF should be promoted.

Keywords: Nutrition Surveys; Hypertension; China; Fast Foods

The Status of Non-Communicable Diseases surveillance in Nigeria

Kingsley Agho (K.Agho@westernsydney.edu.au) [1]

School of Health Sciences, Western Sydney University, Campbelltown Campus, Australia[1]

Introduction: Non-Communicable Diseases (NCD) continue to be the major cause of morbidity and mortality in Nigeria due to the lack of awareness by Nigerians on the knowledge of NCDs and the need for routine medical check-ups. Hence this study systematically examines the status of NCD surveillance in Nigeria.

Methods: A desk review was conducted in January 2022, to examine the current national Non-Communicable disease surveillance in Nigeria from multiple sources. Policies and program documents relating to NCD surveillance in Nigeria were identified and analysed from 2010 to 2022.

A search was made on Ovid Medline, Scopus and Google Scholar to identify and analyse the available material. A Google search was additionally made to acquire the grey literature.

Result: A total of 18,652 articles were retrieved, and 10 studies met the inclusion criteria. The results were categorised into four major themes of the global monitoring framework: monitoring of the exposure/risk factor, monitoring of the outcomes, the health system capacity/response and inadequate knowledge of NCDs by Nigerians.

Conclusions: Findings from this study suggest a need for routine medical check-ups at the individual level. At the community level, a misconception by the community hampered the drive for NCDs surveillance. At the government level, Electronic Surveillance (e-Surveillance) will be needed for active surveillance and monitoring of the general public disease outbreaks to improve data collection.

Keywords: Nigeria; Noncommunicable Diseases; Communicable Diseases; Population Surveillance

---

Implementation of Non-Communicable Disease Policies From 2015 to 2020: A Geopolitical Analysis of 194 Countries

Luke N Allen[1], Simon Wigley[2], Hampus Holmer (hampus.holmer@ki.se)[3,4]

[1]Department of Clinical Research, London School of Hygiene & Tropical Medicine, London, UK; [2]Department of Philosophy, Bilkent University, Ankara, Turkey; [3]Department of Global Public Health, Karolinska Institutet, Stockholm, Sweden; [4]Center for Policy Impact in Global Health, Duke Global Health Insitute, Duke University, Durham, NC, USA

Introduction: Non-communicable diseases (NCDs) are the leading cause of morbidity and mortality globally. We aimed to analyse trends in implementation of WHO-recommended population-level policies and associations with national geopolitical characteristics.

Methods: We calculated cross-sectional NCD policy implementation scores for all 194 WHO member states from the 2015, 2017, and 2020 WHO progress monitor reports, and examined changes over time as well as average implementation by geographical and geopolitical region and income level. We developed a framework of indicators of national characteristics hypothesised to influence policy implementation, including democracy, corporate permeation (an indicator of corporate influence), NCD burden, and risk factor prevalence. We used multivariate regression models to test our hypotheses.

Results: On average, countries had fully implemented a third (32·8%, SD 18·2) of the 19 policies in 2020. Using aggregate policy scores, which include partially implemented policies, mean implementation had increased from 39·0% (SD 19·3) in 2015 to 45·9% (19·2) in 2017 and 47·0% (19·8) in 2020. Implementation was lowest for policies relating to alcohol, tobacco, and unhealthy foods, and had reversed for a third of all policies. Low-income and less democratic countries had the lowest policy implementation. Our model explained 64·8% of variance in implementation scores. For every unit increase in corporate permeation, implementation decreased by 5·0% (95% CI −8·0 to −1·9, p=0·0017), and for every 1% increase in NCD mortality burden, implementation increased by 0·9% (0·2 to 1·6, p=0·014). Democracy was positively associated with policy implementation, but only in countries with low corporate permeation.

Conclusion: Implementation of NCD policies is uneven, but broadly improving over time. Urgent action is needed to boost implementation of policies targeting corporate vectors of NCDs, and to support countries facing high corporate permeation.

Keywords: Health policy; Noncommunicable Diseases; World Health Organization

Use of Drug Utilisation Data and Mixed-Method Approach to Evaluate the Impact of Healthcare Policies to Optimise NCD Management: Lessons from A UK-Based Study

Amanj Kurdi[1,2,3], Rachel Elliott[4], Li-Chia Chen[5]

[1]*Strathclyde Institute of Pharmacy and Biomedical Science (SIPBS), University of Strathclyde, Glasgow;* [2]*Center of Research and strategic studies, Lebanese French University, Erbil, Kurdistan Region Government, Iraq;* [3]*Department of Pharmacology and Toxicology, College of Pharmacy, Hawler Medical University, Erbil, Kurdistan Region Government, Iraq;* [4]*Division of Population Health, Health Services Research and Primary Care, School of Health Sciences, Faculty of Biology, Medicine and Health, University of Manchester, Manchester Academic Health Science Centre, Manchester, UK;* [5]*Centre for Pharmacoepidemiology and Drug Safety, Division of Pharmacy and Optometry, School of Health Sciences, Faculty of Biology, Medicine and Health, University of Manchester, Manchester Academic Health Science Centre, Manchester, UK*

Introduction: Although healthcare policies, including prescribing indicators, are often developed to optimize management of NCDs, evaluation of their impact (both intended and unintended) is often forgotten. Drug utilization (DU) data and mixed-method studies are ideal for policy evaluation studies. We aimed to demonstrate and provide learning lessons around this using a UK prescribing indicator established in 2009 for optimizing the prescribing of ACEIs/ARBs in treating hypertension using an 80% ACEIs as a target.

Method: A mixed-method study compromised of a segmented time-series analysis of monthly ACEIs prescription proportion, to quantitatively evaluate the policy impact, and face-to-face qualitative interview to explain and understand the barriers/facilitators of the policy failure/effectiveness.

Results: The policy was associated with a sudden reduction in the proportion of ACEIs prescription; however, it resulted in a statistically significant increase in the post-policy monthly trend of ACEIs prescription proportion of 0.013% (p<0.001). Despite this post-policy induced increment, the policy failed to achieve the 80% target. Four factors/barriers, related mainly to GPs' psychological capability and reflective motivation, emerged as the possible barriers for the BCBV's lack of uptake, including: lack of the policy awareness, negative attitude to the policy, lack of incentives, and GPs' reluctance to switch patients from ARBs to ACEIs.

Conclusion: This study represents a case study of a failed or ineffective policy which is underpinned by a lack of a proactive implementation strategy; hence low uptake. This study demonstrates the power of DU date and mixed-method approach to evaluate impact of healthcare policies.

Keywords: Noncommunicable Diseases; Health Policy; United Kingdom; Drug Utilization

ABSTRACTS FROM THE INVITED SPEAKERS OF THE SPECIAL SESSION

A Community-Based Intervention for Managing Hypertension in Rural South Asia

Tazeen H Jafar, MD, MPH[1,2,3] , Mihir Gandhi, PhD [4,5,6*] , H. Asita de Silva, DPhil, FRCP[7]*, Imtiaz Jehan, MBBS, FCPS, MSc[8]*, Aliya Naheed, MBBS, PhD[9]*, Eric A. Finkelstein, PhD[1,3,] Elizabeth L. Turner, PhD[3, 10], Donald Morisky, ScD[11], Anuradhani Kasturiratne, MBBS, MD[12], Aamir H Khan, MBBS, FCPS[13], John D Clemens, PhD[9], Shah Ebrahim, DM[14], Pryseley N Assam, PhD[4], Feng Liang, PhD[1] on behalf of the COBRA-BPS Study Group**

[1]*Program in Health Services & Systems Research, Duke-NUS Medical School, Singapore;* [2]*Department of Renal Medicine, Singapore General Hospital, Singapore;* [3]*Duke Global Health Institute, Duke University, Durham, NC, USA;* [4]*Biostatistics, Singapore Clinical Research Institute, Singapore;* [5]*Centre for Quantitative Medicine, Duke-NUS Medical School, Singapore;* [6]*Center for Child Health Research, Tampere University, Tampere, Finland;* [7]*Clinical Trials Unit, Department of Pharmacology, Faculty of Medicine, University of Kelaniya, Sri Lanka;* [8]*Department of Community Health Sciences, Aga Khan University, Karachi, Pakistan;* [9]*International Centre for Diarrhoeal Disease Research, Bangladesh;* [10]*Department of Biostatistics & Bioinformatics, Duke University, Durham, NC, USA;* [11]*UCLA Fielding School of Public Health, Department of Community Health Sciences, Los Angeles, CA, USA;* [12]*Department of Public Health, Faculty of Medicine, University of Kelaniya, Sri Lanka;* [13]*Section of Cardiology, Department of Medicine, Aga Khan University, Karachi, Pakistan;* [14]*London School of Hygiene & Tropical Medicine, UK.*
*** A list of the members of the COBRABPS Study Group is provided in the Supplementary Appendix, available at NEJM.org.*
**Drs. Gandhi, de Silva, Jehan, and Naheed contributed equally to this article.*
[Published in the NEW ENGLAND JOURNAL of MEDICINE]

Introduction: The burden of hypertension is escalating, and control rates are poor in low- and middle-income countries. Cardiovascular mortality is high in rural areas.

Methods: We conducted a cluster-randomized, controlled trial in rural districts in Bangladesh, Pakistan, and Sri Lanka. A total of 30 communities were randomly assigned to either a multicomponent intervention (intervention group) or usual care (control group). The intervention involved home visits by trained government community health workers for blood-pressure monitoring and counseling, training of physicians, and care coordination in the public sector. A total of 2645 adults with hypertension were enrolled. The primary outcome was reduction in systolic blood pressure at 24 months. Follow-up at 24 months was completed for more than 90% of the participants.

Results: At baseline, the mean systolic blood pressure was 146.7 mm Hg in the intervention group and 144.7 mm Hg in the control group. At 24 months, the mean systolic blood pressure fell by 9.0 mm Hg in the intervention group and by 3.9 mm Hg in the control group; the mean reduction was 5.2 mm Hg greater with the intervention (95% confidence interval [CI], 3.2 to 7.1; P<0.001). The mean reduction in diastolic blood pressure was 2.8 mm Hg greater in the intervention group than in the control group (95% CI, 1.7 to 3.9). Blood-pressure control (<140/90 mm Hg) was achieved in 53.2% of the participants in the intervention group, as compared with 43.7% of those in the control group (relative risk, 1.22; 95% CI, 1.10 to 1.35). All-cause mortality was 2.9% in the intervention group and 4.3% in the control group.

Conclusion: In rural communities in Bangladesh, Pakistan, and Sri Lanka, a multicomponent intervention that was centered on proactive home visits by trained government community health workers who were linked with existing public health care infrastructure led to a greater reduction in blood pressure than usual care among adults with hypertension. (Funded by the Joint Global Health Trials scheme; COBRA-BPS clinicaltrials.gov number, NCT02657746. Opens in new tab.)

Climate Change, Environmental Exposure and Risk Factors for Developing Cardiometabolic Diseases

Rubhana Raqib[1], Evana Akhtar[1], Anjan Kumar Roy[1], Md. Ahsanul Haq[1], Aliya Naheed[1], Ondine von Ehrenstein[2], Yukiko Wagatsuma[3]

1icddr,b Dhaka-1212, Bangladesh; 2University of California, Los Angeles, USA; 3University of Tsukuba, Tsukuba, Japan

Introduction: With increasing economic development populations in low- and middle-income countries (LMIC) in South Asia are also transitioning in their disease risks and outcomes towards a dominant burden of non-communicable diseases (NCD). There is a knowledge gap about the risk factors and their impacts, particularly among children and adolescents.

Aim: We aimed to study the associations between biomarkers of cardiometabolic diseases and environmental factors (salinity and arsenic in drinking water) in a longitudinal birth cohort.

Methods: Adolescents aged 15 years belonging to a longitudinally followed birth cohort (MINImat) were enrolled in rural Matlab (n=450). Anthropometric, sociodemographic, and lifestyle data and single blood samples were collected. Drinking water was collected from household tubewells. Biomarkers of cardiometabolic disease (plasma lipids including oxidized lipids, HbA1c) in blood and environmental exposure markers (salinity and toxic metals) in drinking water were determined.

Results and Conclusion: Data analysis is going on. Some preliminary data will be shared during the presentation.

Keywords: Climate Change; Cardiovascular Diseases; Risk Factors; Environmental Exposure

Demographic, Socioeconomic, and Biological Correlates of Hypertension in an Adult Population: Evidence from the Bangladesh Demographic and Health Survey 2017–18

Afrin Iqbal[1], Karar Zunaid Ahsan[2], Kanta Jamil[3], M. Moinuddin Haider[1], Shusmita Hossain Khan[4], Nitai Chakraborty[5], Peter Kim Streatfield[1]

[1]icddr,b; [2]Department of Maternal and Child Health, Gillings School of Global Public Health, University of North Carolina at Chapel Hill; [3]USAID/Bangladesh; [4]Data for Impact, University of North Carolina at Chapel Hill; [5]Department of Statistics, University of Dhaka

Introduction: Bangladesh is well advanced in the epidemiologic transition from communicable to noncommunicable diseases, which now account for two out of three deaths annually. This paper examines the latest nationally representative hypertension prevalence estimates, awareness, treatment, and control—to identify its association with potential correlates.

Methods: The analyses are based on recent Bangladesh Demographic and Health Survey 2017-18 data. Univariate analyses and bivariate analyses between the outcome variables and individual covariates were carried out. Then chi-square tests were done to see the proportional differences

between them. To examine the demographic, socioeconomic and biological factors affecting hypertension, awareness, treatment and control, we used multivariate logistic regression models.

Results: We found that the prevalence of hypertension for females and males together aged 35 or more has risen by half between 2011 (25.7%) to 2017 (39.4%). With the broader age range used in 2017, the prevalence is now 27.5% in the population aged 18 years or more. The factors associated with hypertension included older age, being female, urban residence, higher wealth status, minimal education, higher body mass index and high blood glucose level. Following multivariate analyses, many of these characteristics were no longer significant, leaving only age, being female, nutritional status and elevated blood glucose level as important determinants. Over half (58%) females and males who were found to be hypertensive were not aware they had the condition. Only one in eight (13%) had the condition under control.

Conclusion: In the coming years, a rising trend in hypertension in Bangladeshi adults is expected due to demographic transition towards older age groups and an increase in overweight and obesity among the population of Bangladesh. With more women being hypertensive than men, a targeted approach catered to high-risk groups should be thoroughly implemented following the Multisectoral NCD Action Plan 2018–2025. Acting in close collaboration with other ministries/relevant sectors to bring an enabling environment for the citizens to adopt healthy lifestyle choices is a prerequisite for adequate prevention. While screening the adult population is essential, the public sector cannot possibly manage the ever-expanding numbers of hypertensives. The private sector and NGOs need to be drawn into the program to assist.

Keywords: Socioeconomic Factors; Hypertension; Demography; Health Surveys; Bangladesh

DocTime: A digital telehealth initiative in Bangladesh

Anowar Hossain, Mohammad Faisal, William Delylle (william@doctime.net)

DocTime Limited, Bangladesh

Introduction: DocTime is on a mission to improve the health and wellbeing of the population of Bangladesh and provide accessible and affordable health services through advanced technology. We report the situation of demand on DocTime services for Non-Communicable Diseases (NCD) in Bangladesh.

Methods: DocTime offers on-demand General Physician (GP) and specialist consultations, online prescriptions, medicine delivery, integrated pathology/diagnostics tests; all while building valuable Electronic Patient Records (EPRs) and consultation history. DocTime App adds multiple digital touchpoints on NCDs health education, referral checklists, digital and instant data gathering and monitoring through the Electronic Patient Record (EPR), data analysis, and findings extractable directly from the platform. We focus on supporting evidence-based healthcare and give access to consented medical data for researchers.

Results: We tracked over half a million downloads of our App in 2021. More than 800 doctors approved the Apps and the highest customer ratings was received on the quality of medical care in the market at 4.8 out of 5 stars. DocTime was extracted on 4200 NCD-focused consultations and of the 45% were women patients, suggesting gender balance in access to the service. Patients

consulted for asthma (26%), hypertension (23%), diabetes (7%) and 17% stress/anxiety. DocTime has demonstrated care with individual patient customisation, including on on-boarding the right eligible patients (age, gender, district geographical location, NCDs criteria), the right practitioners/ pharmacists, and, educating the patient on lifestyle modifications through the App and educational videos, follow-up consultations and automated reminders for improving medication adherence, building instant Electronic Patient Records and trackers for the patients, as well as doctors/ pharmacists/ health community workers.

Conclusion: DocTime demonstrates easy access to health services, including NCDs which demand continuous care and repeated follow-up. Our technology improves access to healthcare and can leverage our patient health data analytics capabilities to support medical research and clinical trials.

Keywords: Telemedicine; Program Evaluation; Bangladesh

ABS-100

A Guideline to Protect the Vulnerable Group with Utmost Preference

Faruque Pathan, Shahjada Selim, Md Fariduddin, Md Hafizur Rahman, SM Ashrafuzzaman, Faria Afsana, Nazmul Kabir Qureshi, Tanjina Hossain, M Saifuddin, AB Kamrul-Hasan, Ahmed Salam Mir

On behalf of the BES Diabetes and COVID Task Force

Introduction: The year 2020 witnessed a largely unprecedented pandemic of corona virus disease (COVID-19), caused by SARS COV-2. Many people with COVID-19 have comorbidities, including diabetes, hypertension and cardiovascular diseases, which are significantly associated with worse outcomes. Moreover, COVID-19 itself is allied with deteriorating hyperglycemia. Therefore, Bangladesh Endocrine Society has formulated some practical recommendations for management of diabetes and other endocrine diseases in patients with COVID-19 for use in both primary and specialist care settings.

Objective: The objective of the article is to develop a guideline to protect the vulnerable group with utmost preference – the elderly and those with comorbid conditions. Therefore, to ensure the adequate protective measures and timely treatment for COVID-19 patients with diabetes, other endocrine diseases or any other comorbidities.

Considering and Monitoring Issues:

• The risk of a fatal outcome from COVID-19 may be up to 50% higher in patients with diabetes than in non-diabetics.

• Patients with diabetes and COVID had CFR 7.3–9.2%, compared with 0.9–1.4% in patients without comorbidities.

• Diabetic ketoacidosis may be one of the causes of mortality in COVID-19.

• There is a wide fluctuation of blood glucose in these patients, probably due to irregular diet, reduced exercise, increased glucocorticoids secretion, and use of glucocorticoids.

• HbA1c should be <7.0% for the majority of the patients, this target may be relaxed in

appropriate clinical settings.

10

- More emphasis should be given to day-to-day blood glucose levels. Hypoglycemia (<3.9 mmol/l) must be avoided.

- Frequent monitoring of blood glucose is needed in critically ill patients.

Conclusion: The fight against COVID-19 has been proven to be a challenging one. Therefore, all healthcare personnel should make the best use of updated knowledge and skills to ensure adequate protective measures and timely treatment for COVID-19 patients with diabetes, other endocrine diseases or any other comorbidities.

Keywords: COVID-19, Diabetic Ketoacidosis, SARS COV-2, Delivery of Health Care

---

Risk factors of grade 2/3 obesity in Bangladesh – a hospital-based study

Tahniyah Haq[1], Md. Fariduddin[1], Palash Chandra Sutradhar[1], Md Shahinul Alam[1], M A Hasanat[1]

[1]*Bangabandhu Sheikh Mujib Medical University (BSMMU)*

Introduction: Obesity is a growing public health concern in Bangladesh. It is important to investigate the risk factors of obesity in our country as our lifestyle differs from other countries in several aspects. This will aid the development of preventive policies and national guidelines targeting factors increasing severe obesity in our population.

Aim: The aim of the study was to determine the risk factors of grade 2/3 obesity.

Method: This cross-sectional study was done in the department of Endocrinology, BSMMU from May 2019 to March 2020 in 189 children (mean age: 12.27 ± 3.22 kg/m2) and 49 adults (mean age 32.81 ± 9.88 kg/m2) with primary exogenous obesity. Participants with secondary causes of obesity were excluded. Childhood and adult obesity were classified using growth charts and tables of the US Centers for Disease Control and Prevention (CDC) for BMI. Risk factors (family, screen time, diet and physical activity domains) in overweight and obese individuals were assessed with an open ended structured questionnaire.

Result: Duration of coaching was related with BMI after controlling for other risk factors (β=0.883, p=0.02). Duration of smartphone use other than calling was linearly related with BMI in children (β=0.914, r=0.004). Screen time $\geq$2 hours, (OR=8.836, p=0.009), snacking (OR=11.872, p=0.033) and maternal obesity (OR=2.963, p=0.033) were independent predictors of childhood grade 2/3 obesity. There was no association with risk factors in adults with obesity.

Conclusion: Duration of coaching, screen time, maternal obesity and snacking were predictors of grade 2/3 obesity in children. No association was found in adults.

Keywords: Obesity; Risk Factors; Hospitals; Overweight; Bangladesh

Women with Polycystic Ovary Syndrome (PCOS) and Cardiovascular Disease Risk

Marufa Mustari[1]

[1]*Bangabandhu Sheikh Mujib Medical University (BSMMU)*

Introduction: Polycystic ovary syndrome (PCOS) is one of the most common endocrinopathy affecting women of reproductive age. Its etiology is not clearly understood. Clinical symptoms of PCOS include acne, amenorrhea or oligomenorrhea, hirsutism, infertility, obesity and mood disorders, which tend to be the primary focus of clinical management. However, the impact of PCOS on future cardiovascular disease (CVD) risk should not be underestimated, and opportunities to implement CVD prevention strategies in these women should be given high priority.

Methods: The pathogenesis of PCOS commonly involves insulin resistance and hyperinsulinemia which leads to several cardiometabolic abnormalities like dyslipidemia, hypertension, glucose intolerance, diabetes, and metabolic syndrome, thereby putting women at an increased risk for CVD.

Results: Polycystic ovarian syndrome should be considered as an important risk factor for CVD, regardless of BMI as lean PCOS women also have insulin resistance. However, the phenotype of PCOS should be taken into account when assessing CVD risk in these women. In Bangladesh, 22 percent of women of reproductive age suffer from PCOS where many women are at risk of this cardiometabolic disorder.

Conclusion: The lack of awareness regarding the condition along with a sedentary lifestyle has imposed the number of PCOS cases and made them face further a variety of CVD for not taking any preventive measures and proper counselling in Bangladesh. Early detection and taking effective measures are the key to preventing cardiovascular disease among women with PCOS in Bangladesh.

Keywords: Polycystic Ovary Syndrome; Cardiovascular Diseases; Risk Factors

Addressing Pediatric NCD in Bangladesh Through Health System Strengthening

Than Cho[1]

[1]*UNICEF Bangladesh*

Introduction: Though Bangladesh has done well towards improving health care in the country, still there are areas that require further attention, especially on Pediatric NCDs. Such as (1)Data on impact/burden of pediatric NCDs across the country; (2)Policy/strategy for providing care to children and adolescents effecting with NCD. To solve this barrier, in 2018, MOH&FW had formulated the multisectoral action plan for prevention and control of NCDs to guide development of policies with four actions: Action area 1: Advocacy, leadership and partnerships; Action area 2: Health promotion and risk reduction; Action area 3: Health systems strengthening for early

detection and management of NCDs and their risk factors; Action area 4: Surveillance, monitoring and evaluation, and research

Methods: UNICEF intervention to pediatric NCD

Ministry of family health and welfare jointly with UNICEF has prioritize pediatric NCDs especially focused on type 1 diabetes mellitus, Asthma, Sickle Cell Disease and Rheumatic diseases. During 2022, UNICEF will work with MOHFW for the care and treatment of pediatric NCDs through **Advocating** the policymakers for better awareness of pediatric NCDs, Nation-wide **assessment** of burden of NCDs particularly among children, Revising of treatment **guideline**, **capacity building** of service provider on pediatric NCD, **Establish the supply chain management system** (Procurement of commodities and equipment such as test strip for Diabetes, drugs for underlying diseases), Integration of NCDs related indicators into the **health management information system** of DGHS, Lastly **community engagement** for the impact of NCDs

Results and conclusion: These interventions will benefit a nation-wide assessment /survey which will give a glimpse of the current situation/burden of pediatric NCD in the country to support formulation of policy/strategy for pediatric NCDs for early detection of pediatric NCDs hence reducing the burden of those disease in the adult life to some extent. In addition, integration of NCD-related indicators into HMIS will allow the data visualization of NCDs with real-time basis and enables the hospital managers/ administration at the Dhaka level to understand the burden of pediatric NCDs at a glance. Up-to-date guidelines/ SOP/ treatment modules focusing on pediatric care will be produced.

Keywords: Delivery of Health Care; Noncommunicable Diseases; Bangladesh

---

ABS-144

Thalassemia, Where We Stand and Future Plan

Dr. Sheikh Daud Adnan[1]

[1]*Transfusion Medicine Specialist, Joint Secretary, AATM International Secretary, AATM Bangladesh Chapter*

Thalassemia is an inherited disorder of hemoglobin characterized by reduced rate of production of the globin chain of hemoglobin. An estimated 320,000 babies are born each year with a clinically significant hemoglobin disorder. Nearly 80 of these births occur in developing countries. Despite the fact that Bangladesh lies in the world's thalassemia belt, information on epidemiology, clinical course, mortality, complications and treatment outcomes of thalassemia's is lacking. Mathematically calculated that roughly 33/10,000 baby born in Bangladesh would have thalassemia. The epidemiological data available mainly in Bangladesh underestimate the future health burden resulting from thalassemia.

- Future plan:
  1. Early Diagnosis and Treatment-
     - Develop National Thalassemia Guideline
     - Adopt cheap and available diagnostic testing protocol
     - Collect data of all cases of Thalassemia (Thalassemia Tracker)

- Treatment Plan and ensure supplies of consumables

- Nutritional guidance & Psychological support

- Early detection of possible complication and treatment of complication

- 2. Prevention: Thalassemia is a preventable disease.

    A) Creating awareness

    B) Population screening—

        - Screening High Risk Family Members

        -Child bearing potential group screening:

        -Premarital Screening:

        -Screening of pregnant mothers at first visit

    C) Avoiding marriage between carrier's

    D) Genetic counseling

    E) Preventing birth of affected fetus by prenatal diagnosis –

        - Amniocentesis

        -Chorionic Villus Sampling (CVS)

    Can eliminate Thalassemia from our country.

Keywords: beta-Thalassemia

Situation of Pediatric NCD in Bangladesh

Bedowra Zabeen

CDiC Pediatric Diabetes Center, BIRDEM

Background: Non-communicable disease (NCDs) is a global priority in the Sustainable Development Goals, especially for adolescents. Obesity and overweight are considered both non-communicable diseases and risk factors. Worldwide obesity has nearly tripled since 1975, Recent estimates suggest that 40 million children under the age of 5 years and more than 330 million children and adolescents aged 5–19 years were overweight or obese in 2016. Once considered a high-income country problem, overweight and obesity are now on the rise in low- and middle-income countries, particularly in urban settings. Children who are overweight and obese also have more metabolic and cardiovascular risk factors such as high blood pressure, dyslipidaemia, type 2 diabetes and other abnormalities of the cardiovascular system.

Bangladesh scenario: Bangladesh is facing the 'dual burden' of both malnutrition and obesity. Rapid urbanization and industrialization are changing the food habits resulting in socio-economic, demographic and cultural changes leading to nutritional transition.
In 1980, 7% of adults and 3% of children were overweight or obese in Bangladesh which had climbed to 17% for adults and 4.5% for children in 2013 — according to The Institute for Health

Metrics and Evaluation (IHME) of the University of Washington. A research explored the "Prevalence of childhood obesity and overweight in Bangladesh: findings from a countrywide epidemiological study" concluded that the rate of obesity and overweight was alarming among school aged children in the urban areas in Bangladesh. Children with type 2 diabetes, which is common in older people, is also rising "alarmingly" in Bangladesh, hospital data shows. The number of children with T2D increased seven fold from 2010 (2%) to 2015 (14%) in a previous study of all children with diabetes seen at BIRDEM. The incidence of T2D per 100,000 for <20 y in 2011 was 0.2[0.11–0.41] and rose to 0.57 [0.38–0.81] in 2018 in patients who are living in Dhaka city found in another study done in BIRDEM. In a study done in 1146 school children in Dhaka, the prevalence of hypertension was 1.8% with a strong correlation between body weight and BMI of the children with hypertension.

Conclusions: Overweight and obesity, as well as related noncommunicable diseases, are largely preventable. Multi-sectoral efforts with involvement of the government and other stakeholders are required to mitigate NCD risk factors among children and adolescents to combat disease burden and adverse outcomes in adulthood.

Keywords: Child; Noncommunicable Diseases; Bangladesh

Prevalence and Associated Risk Factors of Diabetic Retinopathy Among Diabetic Patients Attending Eye Camps in Northern Bangladesh

Khairul Islam[1], Md. Sumsujjaman[1], Rokhsana Afroze Shoma[1], Md. Sajidul Huq[1], A. K. M. Firoz Alam Saifullah[1]

[1]Deep Eye Care Foundation, Rangpur, Bangladesh

Introduction: Diabetic retinopathy (DR) is one of the leading causes of vision loss which occurs as a result of micro-vascular complication of diabetes. The aim of the study is to assess the prevalence and factors associated with development of diabetic retinopathy among diabetic patients attending eye camps in a diabetic hospital of northern Bangladesh.

Methods: This was a population-based cross-sectional study, conducted through five comprehensive eye camps at diabetic association hospital in Nilphamari, Bangladesh. Previously diagnosed patients with Diabetes Mellitus attending eye camps were the sample of this study which included a total of 254 participants. All participants underwent complete eye examination to check for any signs of DR with any other ocular abnormalities. Retinopathy was determined by fundus photography and direct ophthalmoscopy. Participants were also interviewed and examined to determine their demographic characteristics, clinical conditions, awareness on Diabetic Retinopathy and regularity of their eye visits.

Results: A total of 254 subjects were screened for diabetic retinopathy. Of them, 64 (25.2%) had diabetic retinopathy including, including 53 (20.9%) with non-proliferative retinopathy (NPDR) and 11 (4.3%) with proliferative diabetic retinopathy (PDR). Clinically significant macular edema (CSME) was detected in 7 patients (2.7%). The prevalence of diabetic retinopathy was higher among patients with greater duration of diabetes (p=< 0.001), poor glycemic control (p=0.002) and presence of hypertension (p=0.05).

Conclusion: Regular screening in patients with diabetes for early detection of diabetic retinopathy by effective screening program and increasing public awareness are highly recommended in Bangladesh.

Keywords: Diabetic Retinopathy; Prevalence; Risk Factors; Mass Screening; Rural Population; Diabetes Mellitus; Bangladesh.

Community Health Workers Approach in NCD Care at Subdistricts of Bangladesh-a Pilot Program

Arif Ul Haque[1]

[1]*BRAC*

Introduction: The rising prevalence of non-communicable diseases (NCDs) in Bangladesh highlights the importance of addressing NCDs through primary health care model. BRAC, in collaboration with the Medtronic Foundation, piloted a program in early 2020 that used community health workers (CHWs) to improve health outcomes for patients with hypertension and diabetes. It focuses on community-based education on NCDs by CHWs on healthy aging, nutrition, lifestyle followed by screen and referral to nearby NCD centers for standard testing and management. The program also includes household follow-up by community health workers to improve adherence to NCD management and lifestyle modification.

Method: Every six months, a camp was arranged at the community level to screen suspected cases of hypertension (HTN) and diabetes (DM) after a 30-minute talk on prevention and lifestyle modification. These identified suspected cases are referred to a nearby NCD center for confirmatory laboratory tests and recommended for treatment protocol depending on the status of the cases. The CHW then did home visits to see patient adherence to the treatment protocol and change in physical parameters. The enrolled patients were divided into two groups, one was 'home-based patients' with required medical devices for self-management (e.g. glucometers and BP machines), and another was 'center-based patients'. The center-based and home-based patients visited NCD center at every month and quarterly interval respectively for further management and follow up. Both groups were followed-up by CHWs at household visits. A total of 584 patients were enrolled. Among them 274 were hypertensive and 252 diabetics while the remaining 58 have both DM and HTN.

Result: 145 community health workers were trained to provide comprehensive NCD care and among them 99% provided timely care to their patients. The results revealed 91% (534) enrolled patients remained on treatment for 18 months (DM 223, HTN 250, Co morbid 52). Among them, 90% (193) Diabetic patients, 87% (209) hypertensive and 93% (52) co morbid patients showed clinical improvement. Despite COVID -19, 86% of patients regularly visited NCD centers.

Conclusion: The community health care model with a home-based follow-up system improves patient adherence to the standard treatment protocol and has a positive clinical shifting on physical parameters.

Keywords: Community Health Workers; Noncommunicable Diseases; Pilot Projects; Bangladesh

"Presbyopia Correction through Sasthya Sebikas (SS): Reaching the Unreached"

Arif Ul Haque[1], Mohammad Ariful Alam[1]

[1]*BRAC*

Introduction: Evidence shows that Bangladesh has a high prevalence of refractive errors, including presbyopia and low coverage of corrective eyeglasses, especially in rural areas, due to lack of access and economic barriers. The majority of the population in Bangladesh lives in rural areas with limited or no access to qualified eye care professionals. BRAC works in partnership with Vision Spring through the network of Sasthya Sebikas (SS) to strengthen the health system in the provision of eye care and affordable eyeglasses. The Reading Glasses for Improved Livelihoods (RGIL) project enhances the skills of CHWs. BRAC Community Health Worker Shasthya Shebika (SS) plays a pivotal role in sensitization, mobilization, screening, identification of presbyopia, provision of affordable reading glasses and referral of other eye problems to nearby eye care facilities for further treatment.

Methods: The RGIL project has 3 components. One is the promotion of eye care through SS, where SS visits 20 households daily and educates people about the importance of eye examination and care. The second component is to organize eye camps at the community by specially trained program organizer to educate people and conduct screening. After the screening, people with presbyopia problems receive ready-to-use glasses at a subsidized price. The last one is to household follow up the patients who could not purchase glasses from camps, SS encourage those patients to use spectacles. Other eye problems identified at the camp are referred to nearby BRAC vision centers or government eye facilities for further treatment. SS received training on mobilization process, eye problems, eye examinations, sales techniques, maintenance of spectacles and referrals.

Results: The project started in 2006, trained 38,008 SSs and successfully screened 9,144,763 individuals with more than half (5,865,241; 63%) identified with presbyopia. 30% of those with presbyopia (1,766,674) immediately purchased affordable glasses after diagnosis, and SSs were also able to refer 1,335,170 (14%) of individuals with other eye conditions to specialized care. The majority of those received eyeglasses (68%) were women, this indicates that this is a much-needed service and a sustainable method to reach out people in a community setting that's lack access to eye care services and products.

Conclusion: SSs are trusted members of the community providing a variety of health services and effective in identifying presbyopia, which is easily corrected with reading eyeglasses. These reading eyeglasses help to increase productivity and quality of life and SSs can 'bridge the gap' in eyecare, particularly for communities residing in rural areas, with no or limited qualified eye care professionals.

Keywords: Presbyopia; Eyeglasses; Visual Acuity

Integration of Eye Care in Comprehensive Service of Children and Adolescents With Diabetes - An Experience From CDiC and LFAC Program in BIRDEM

M. Rahman, K. Huda, A.B. Salim, B. Zabeen

Introduction: CDIC and LFAC is a program of Diabetic association of Bangladesh which emphasizes on comprehensive diabetes care which includes medical treatment of Diabetes, health education combined with appropriate motivation of the patients, caregivers to improve the glycemic control and quality of lives. Eye care has been incorporated with these multidisciplinary diabetes care services intended for early diagnosis and intervention of eye diseases and reduction of childhood blindness through increasing access to quality eye care in young children and adolescents with diabetes. The core objective of this program is to establish a scalable and sustainable model of eye care for children with diabetes. To deliver high quality eye care services and to create demand for eye care through community based awareness rising are among other intents of this program.

Methods: Participants aged 11- 26 years old were enrolled during their scheduled visit in CDiC Pediatric Diabetes Center in Bangladesh Institute of Research and Rehabilitation in Diabetes, Endocrine and Metabolic Disorders (BIRDEM 2). Mandatory annual Eye Checkup (e.g. Ocular Health Screening, Fundus photography, Refraction) is done for each and every registered patient of the CDIC & LFAC program. Patients' data is being collected and stored in PIMS (Patient Information Management System). The demographic and clinical data were collected in a data collection sheet. Retinopathy was screened by Color Fundus Photography (CFP) and grading was done on the basis of NSC (National Screening Committee) classification.

Results: Over 2900 patients have been screened so far in the last 2 years. A significant number of patients are suffering from refractive error. Optic Atrophy, Cataract and Diabetic retinopathy are among other associated ocular problems in children with diabetes. Patients are given access to eye care according to their financial condition. Free cataract surgery is done on 6 patients and over 200 spectacles have been distributed to economically disgraced patients.

Conclusion: Integration of eye care with comprehensive pediatric diabetic care keeps track of early detection of diabetic eye diseases and incidence of visual impairment in eye due to diabetes among children and adolescents can be diminished.

Keywords: Adolescent; Diabetes Mellitus, Type 1

Factors responsible for Development of Ischemic cardiomyopathy After Myocardial Infarction

Sharmin Ahmed[1], Md. Khorshed Ahmed[1], Md. Fakhrul Islam Khaled[1], Tanjima Parvin[1], Manzoor Mahmood[1], Md. Harisul Haque[1]

[1]*Bangabandhu Sheikh Mujib Medical University, Dhaka*

18

Introduction: Ischemic cardiomyopathy is a complication of myocardial infarction which causes left ventricular systolic dysfunction and dilatation. Although mortality and morbidity of ischemic cardiomyopathy is high, data on factors contributing the development of ischemic cardiomyopathy after myocardial infarction is very scanty. The aim of the study was to assess factors predisposing to development of ischemic cardiomyopathy after myocardial infarction.

Method: This was a cross-sectional study which was carried out at the department of Cardiology, Bangabandhu Sheikh Mujib Medical University, Dhaka during the period of one year October 2020 to September 2021. All patients admitted with history of myocardial infarction were initially approached. 296 patients were included in the study according to inclusion & exclusion criteria. Study subjects were divided equally into two groups. Group-I included all patients who developed ischemic cardiomyopathy and Group-II included patients who had history of myocardial infarction but did not develop ischemic cardiomyopathy. Multiple parameters were analyzed to find out the factors responsible for development of ischemic cardiomyopathy after myocardial infarction.

Results: In this study multiple factors were found to be responsible for development of ischemic cardiomyopathy. Mean age of the patients was higher in the ischemic cardiomyopathy group (63.5 ± 9.8, p value<0.05). Diabetes mellitus and Hypertension were significantly more prevalent in Group-I (47.1% and 56.3%) than Group-II (32.6% and 31.3%) with p value 0.014 and 0.001 respectively. Number of STEMI patients was significantly higher in Group-I (71.7%) than Group-II (58%) (p=0.017). Number of patients undergoing Primary PCI was significantly lower in group-I than group-II (2.9% and 10.1% with p=0.015). The number of patients getting pharmaco-invasive therapy were fewer in Group-I than Group-II (5.8% and 20.3% p=0.001). Self-discontinuation of drugs was significantly greater in Group-I than Group-II (88.4%) and 68% respectively (p=0.001).

Conclusion: Development of ischemic cardiomyopathy after Myocardial infarction can be predicted by a number of factors. This study can help to evaluate post-infarction patients more meticulously to identify the possibility of development of ICM and facilitate more appropriate treatment.

Keywords: Myocardial Infarction; Cardiomyopathies

ABS-138

Challenges of stroke management in Bangladesh

Subash Kanti Dey[1]

[1]*Bangabandhu Sheikh Mujib Medical University*

Introduction: Stroke is the second leading cause of death in developed countries. In Bangladesh it is the leading cause of death. Worldwide it is the major cause of disability. Stroke are two types, Ischemic and hemorrhagic. Majority of strokes are ischemic, which is about 85% of the total stroke. It is a medical emergency. Management of ischemic stroke is rapidly changing due to advancement of treatment techniques like iv rtpa and mechanical thrombectomy or intra-arterial thrombolysis. But challenges are the limited time window and lack of infrastructures. Early recognition and rapid intervention can save life and disability. Objective of the study is to create awareness about acute stroke management.

Methods: Data collected from different resources.

Results: In Bangladesh there are 2213 hospitals. The number of registered physicians is 45,723. There are 160 trained Neurologists. There are 2300 technologists, 250 CT scans and 80 MRI. But acute stroke is available in 2 Government and 5 private hospitals, all situated in Dhaka.

Conclusions: To reduce the mortality and disability from stroke, management of acute stroke in all Government and private hospital should be started as soon as possible.

Keywords: Stroke; Bangladesh

Mental Health Treatment GAP: Current Scenario and Future Plan

MMA Shalahuddin Qusar[1], Nahid Mahjabin Morshed[1], Sazib Abedin[2]

[1]Bangabandhu Sheikh Mujib Medical University; [2]Mymensingh Medical College and Hospital

Introduction: National Mental Health Survey 2018-2019, conducted by National Institute of Mental Health, Bangladesh with the help of NCDC of DGHS and MoHFW.

Methods and Results: This survey was also technically supported by the World Health Organization, Bangladesh. Survey revealed that 16.8% of adults and 13.6% of children and adolescents are suffering from different mental disorders. Another very important finding of that survey was the mental health treatment gap. Treatment gap in adults was 92.3% and in child and adolescent were 94.5%, which means 92.3% of adults and 94.5% of child and adolescents are not getting mental or psychiatric treatment who actually need to. Only 8% of adults take treatment and less than 6% of children with mental illness adhere to treatment. Every individual untreated disease or disorder has its own consequences. Severe mental health conditions can lead to suicide, disability, impaired functional capacity, decreased quality of life and other problems. Mental health conditions are ignored and still neglected in many portions of life. Comorbid physical and mental disease or disorder, if remain untreated can lead to so many unwanted outcomes.

Conclusion: With the limited resources of mental health specialists, it would be very difficult to overcome this situation within a short time. So participatory and community involvement would be a very important step to combat the situation. Short term training of other specialists, steps for early recognition, rearrangement of curriculum, and immediate innovative digital involvement will be helpful to overcome or fight with the situation.

Without improving mental health conditions and without reducing the mental health treatment gap it will not be possible to certify the good figure of health definition.

Keywords: Mental Health.; Mental Health Services; Mental Disorders

Management of Diabetes in Low Resource Settings

Shahjada Selim[1]

[1]*Bangabandhu Sheikh Mujib Medical University*

Introduction: Diabetes is one of the greatest contributors to the global burden of disease. The management of both type 1 and type 2 diabetes mellitus represents a significant challenge in the developing world, which is faced with many pressing health issues, especially infectious diseases. In this context, non-communicable diseases are poorly understood and often under-prioritized by governments.

In many developing countries, there is little physician experience of, or postgraduate training specific to, diabetes and endocrinology. Consequently, diabetes mellitus tends to be managed by non-specialists with sub-optimal resources and relatively little experience of managing the condition. There are also the practical constraints of limited access to oral antihyperglycemic agents (OADs), insulin, injection devices and equipment for self-monitoring of blood glucose (SMBG). Type 1 diabetes mellitus can still be a death sentence for some patients if they, or their family, are unable to purchase insulin. In rural Mozambique, for example, the life expectancy of a child who is diagnosed with type 1 diabetes has been estimated to be as short as 7 months, equal to that in Britain in the pre-insulin era, nearly JOO years ago. Africa is facing a rapidly growing chronic non-communicable disease burden, while at the same time experiencing continual high rates of infectious disease.

Difficulties in calculating epidemiological data: The impact of an increasingly globalized world on disease burden goes beyond infections to non-communicable diseases (NCDs), which are rising in prevalence in middle- and low-income countries as the population ages and lifestyles and diets change. Diabetes exemplifies this process: in 2000, developing countries were estimated to carry 67 of the global burden of diabetes mellitus, but this proportion is predicted to rise to 78%by 2030.

The pre-existing communicable disease burden is large, but the chronic disease burden is growing more quickly and the public health and healthcare delivery systems are not at all equipped to address the gathering storm.

Practical problems in diabetes management: In most developing world settings, especially sub-Saharan Africa, the management of non-communicable diseases is sub optimal. There are few diabetes disease specialists, limited training of dedicated nurses, an absence of standardized management guidelines and protocols, frequent fluctuations in the availability of medications and no register or database of health records: (1) *Lifestyle modification; (2) Health education and (3) Lack of diabetologists and drugs*

The problem with insulin: Insulin is a difficult medication to replace, store or circumvent. Optimistically, there are intervention studies and twinning projects that are beginning to show a variety of benefits in varying locations.

Keywords: Diabetes Mellitus; Health Resources; Developing Countries

Home Based Palliative Care for Terminally Ill Patients: Opportunities and Challenges in Bangladesh

Fariha Haseen[1], Shahaduz Zaman[2], Nezamuddin Ahmad[1], Taufique Joarder[3], Sonia Khanom[1], Sharlin Akther[1], Rezwana Dolon Prima[1], AKM Motiur Rahman Bhuiyan[1], Mostofa Kamal Chowdhury[1], Mridul Sarker[1]

[1]Bangabandhu Sheikh Mujib Medical University (BSMMU); [2]Global Health and Infection Department, Brighton and Sussex Medical School, UK; [3]World Health Organization, Geneva, Switzerland

Introduction: The department of Palliative Medicine, Centre for Palliative Care (CPC) of Bangabandhu Sheikh Mujib Medical University (BSMMU) provides home based palliative care (HPC) services to the terminally ill patients since 2008. Palliative Care Assistants (PCAs) are the primary caregiver of HPC team who provide care with clinical supervision by palliative care physicians and nurses within 20 kilo meters of BSMMU. A study was conducted to understand the home-based palliative care services

Methods: A mixed method study was conducted during October 2020 to June 2021. Quantitative information was collected from the record of 104 registered patients of HPC. Qualitative interviews were done with service providers of HPC team and caregivers of patients (n=23).

Results: Half of the patients' age was between 50 to 80 years, 87% patients were female, 83% patients were married, 66% patients were homemakers and mean monthly income was 64,662 takas. More than 89% patients are cancer patients, 62% patients were referred by doctors/hospitals for HPC at Centre for Palliative Care, followed by the patient's family (33%). Around 18% patients received psycho-social care and 7% patients' spiritual care status was assessed on the first visit.

All staff of HPC are trained in palliative care to various degrees. Those who are involved with care feel challenged to deal with psychosocial and spiritual care. They are generally highly motivated. The clients expressed a high level of satisfaction. Transparency of information about patient and family meetings was a unique practice told by caregivers. Empowerment of family members and auxiliary health workforce-PCAs are the strength of the HPC services.

The caregivers suggested to promote the service widely, to have bereavement service, to make the service more gender sensitive and improve further the telephone service. Additional human resource and logistics are required for scaling up of services.

Conclusion: Home-based care is a well-accepted service among patients. More awareness and promotion is required. Increased psychosocial and spiritual care skills of providers are required. Proper career plan will be motivating for the staff.

Keywords: Terminally Ill; Palliative Care; Terminal Care; Home Care Services; Bangladesh

Current Status of Cervical Cancer Elimination and Proposed Major Actions to Achieve 90, 70, 90 Targets in 2030

Ferdousi Begum[1], Rehana Parvin[2], Shahana Pervin[3]

[1]Obstetrical and Gynaecological Society of Bangladesh (OGSB); [2]Square Hospital; [3]National Institute of Cancer Research & Hospital (NICRH)

Background: Cancer of uterine Cervix is killing more than 8000 women each year in Bangladesh. They suffer to embrace a tragic death after long suffering and lack of support. Though many countries of the world are heading for elimination, Bangladesh has to fast track to fulfil the WHO target of 90 (% of 9-11 years old girls HPV vaccinated) :70 (% Screened for Cervical Cancer):90 (% of diagnosed cases appropriate received treatment).

Methodology: Situation analysis based on records, current literature and discussion with relevant authorities and persons.

Results: HPV vaccination: Demonstration project completed -2017; application for nationwide introduction submitted in 2020- Gavi approval has to be perused. National introduction is under consideration. Vaccine not available (neither in public nor in private sector). Awareness raising program in girls, parents, teachers are urgently needed. EPI Program and UNICEF should come forward.
Screening: VIA-based National Program- about 500 centers, Target group – 30 to 60 years, Screening interval – 5 years, Population coverage – Approx. 15%, Opportunity: RT-PCR facility available. GOB need to shift VIA-based strategic plan to HPV-based strategic plan with or without triage and laboratory standardization. Need funding support for the shift and scale up. UNFPA support may be expanded.
Management of precancerous lesions: presently evaluation is by colposcopy at MCH & DH/Mini colposcope, treatment -Thermal ablation/ LEEP/CKC, See and Treat protocol, Colposcopy centers- About 30 (Govt. MCH & DH). Needs: Expansion of colposcopy clinics with trained providers and adequate logistic supply.
Management of advanced cancers and palliative care: Advanced Cancer: only a few specialist onco-surgeon Radiotherapy available only in few (5 public, 2 private) centers; Palliative Care Centers: Sparse'. GOB is developing 8 dedicated Oncology centers including training of manpower (Gynecologists, Gynae-oncologists, specialists on imaging, radiotherapist, medical technologists & physicists) and logistics -ongoing, needs time. Needs help in planning & development of services, liaison with atomic energy commission, expansion of provision of Palliative care.

Conclusion: The needs are- advocacy at policy level, awareness raising among clients, implementation research, revision of the national strategy in line of global targets and changes, reshuffling of the national committee to make it more dynamic, development of services from primary to tertiary level, rapid expansion of treatment facilities. training of general gynecologists in onco-surgery, enhanced follow up with GAVI, local production of HPV vaccine (Ensuring its availability and deployment in private and public sectors, exploration for funding); data monitoring specific indicators to be included in national HMIS and implemented. A national taskforce may be formed for proper planning and rapid execution.

Keywords: Uterine Cervical Neoplasms; Disease Eradication

Implementation research to Support Cervical Cancer Elimination

Partha Basu

Prevention & Infection Branch at International Agency for Research on Cancer, World Health Organization

In spite of several decades of research significant gap exists between evidence-informed policies and their real-world implementation in cervical cancer prevention through vaccination and screening. Only half of the countries across the globe have introduced the HPV vaccine in their national immunization programme even though the safety, efficacy and cost-effectiveness of the vaccine in preventing cervical cancer is beyond doubt. Cervical cancer screening in limited resourced countries is riddled with implementation challenges – low coverage, suboptimal quality of tests, low compliance and difficulties in accessing timely treatment. The WHO has set intermediate targets for eliminating cervical cancer (90% coverage of adolescent girls with HPV vaccination, 70% coverage of 30+ women to high quality screening and ensuring treatment of 90% screen detected precancers and cancers). These targets will remain unreached unless the low and middle income countries take concerted efforts to implement the programmes.

Understanding of the contextual factors that influence whether an intervention observed to be efficacious in controlled research-setting would work in real programme is essential to close the evidence-practice gap. Such understanding requires implementation research, which in the context of cervical cancer prevention studies the vaccination and screening interventions from the viewpoint of the target population's ability and intention to utilize them. Effective implementation requires investigating the determinants of successes and failures in adoption, scale-up, and sustainability in diverse settings. Implementation research is essential to translate research findings to real programmes since there is no 'one size fits all' strategy in public health.
Implementation research methodology is very different from that of conventional interventional research. Engaging with stakeholders, identifying barriers and enablers for implementing the evidence-based interventions in the local context, developing contextually appropriate implementation strategies by discussing with the stakeholders and evaluating such strategic approaches using appropriate methodology for the implementation outcomes (acceptability, adoption, cost, feasibility, fidelity, reach, access, sustainability) and the service outcomes (effectiveness, safety, equity) are the core components of implementation research. Such research is still undervalued, especially in the LMICs.

Keywords: Uterine Cervical Neoplasms; Early Detection of Cancer; Disease Eradication

HPV DNA Test: A Promising Solution to Combat Cervical Cancer in Bangladesh

Begum Rokeya Anwar (rokeyaanwark44@gmail.com)[1], Nazneen Ara[1], Mahenaz Afroz[1], Nazmun Ara, Alvi Afsara[3], Tazkia Tarannum[2]

[1]*National Institute of Cancer Research Hospital;* [2]*Vaccine consultant, WHO; 3HFRCMCH.*

Introduction: Human papillomavirus (HPV) high risk genotype infection influences the development of invasive cervical cancer (CC) and cervical intraepithelial neoplasia (CIN). A small percentage of women with high-risk HPV (HrHPV) infection would progress into precancerous lesions, while fewer women would progress to invasive cancer. HPV DNA testing for screening of cervical cancer plays an important role in early detection and management of CIN II, III and invasive cancers. The aim of this study was to detect individual's positive for high-risk HPV there by evaluating feasibility of HPV DNA test as a primary screening procedure. PCR based assay of HPV DNA was done in women came for opportunistic screening. HPV 16/18 positive cases were evaluated by colposcopy and biopsy.

Results: In total 153 individuals were screened. 21.56% (33) cases were positive HPV DNA (both 16/8 and non 16/18 HPV). 8.49% (n=13) were positive 16/18 and 13% (20) were positive for HPV non 16/18. CIN-I was found in 54% (7) and CIN-II in 15% (2) cases among those evaluated by biopsy. 31% (4) of those detected as positive for HPV/18, were colposcopically and histopathologically normal. Most of those aged beyond 30 years, were positive for 16/18. 78% (120) cases were HPV negative; assurance was given as they have no threat to develop CC within 5 years.

Conclusion: CC screening by HrHPV DNA test identifies women who currently have high grade cervical lesions who are at greatest risk of developing the invasive disease in future. Hence, LMICs need to consider the HrHPV test as primary screening test.

Keywords: Uterine Cervical Neoplasms; Human Papillomavirus DNA Tests; Papillomaviridae; Cervical Intraepithelial Neoplasia; Bangladesh

---

Pattern of High-Risk Human Papilloma Virus Infection among women with Cervical Intraepithelial Neoplasia

Mina Chowdhury[1]

[1]Department of Obstetrics & Gynaecology, Dhaka Medical College Hospital, Dhaka, Bangladesh

Introduction: Human papillomavirus (HPV) is one of the most common causes of sexually transmitted disease worldwide. The link between genital HPV infections and cervical cancer is well established. The aim of the current study was to observe the pattern of high-risk HPV infection among women with cervical intraepithelial neoplasia (CIN).

Methods: This observational study was conducted in the colposcopy clinic of GOPD of DMCH through one year period. One hundred colposcopically diagnosed cervical intra epithelial neoplasia cases were enrolled in the study maintaining the inclusion and exclusion criteria. Two colposcopy guided punch biopsies were taken from each respondent. One sample was sent to the Histopathology Department for confirmation of diagnosis and another sample was preserved in the refrigerator. Histopathologically diagnosed CIN cases were recorded. Accordingly, preserved samples were separated by checking serial numbers and were sent for high-risk HPV DNA detection. All the information was recorded and the data were analyzed by SPSS version 25.

Results: The mean age of the patients was 39.26 (SD±6.99) years. Colposcopically 60% of respondents were diagnosed with CIN I while 26% had CIN II and 14% had CIN III lesions. Among them 73% cases were diagnosed as CIN histopathologically. High Risk HPV was present in 49(67%) cases of histopathologically diagnosed CIN. HPV 16 was the most commonly occurred infection (67.34%) and HPV 18 was the second most common(32.65%). Other HPV strains HPV 31, 33, 35, 52, 56 and 58 were also detected either as mono-infection or co-infection. It was found that out of 49 HPV positive cases 30(61.22%) had mono infection and 19(38.7%) had co-infection.

Conclusion: HPV genotypes 16, 18, 31, 33, 52, 56 and 58 were detected in the current study. Among them HPV 16 and 18 genotypes are of high public concern due to their high prevalence and could contribute to cervical carcinogenesis within the Bangladeshi population due to their high frequency. Data regarding HPV type-specific prevalence and their co-infection will provide baseline information to predict which genotype-specific HPV vaccination and how the HPV-based screening will influence cervical cancer prevention in Bangladesh.

Keywords: Cervical Intraepithelial Neoplasia; Papillomaviridae; Uterine Cervical Neoplasms

Low-Cost Molecular Biomarker HPV-16/18 E6 Oncoprotein Expression in Cervical Intraepithelial Neoplasia (CIN) and Cervical Cancer with Its Relation with Severity of Neoplastic State

Rifat Ara[1], Shahana Pervin[2], Sabera Khatun[1], Umme Shahera[1], Masuda Sultana[1], Mst. Nurunnahar Aktar[3]

[1]Bangabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh [2]National Institute of Cancer Research and Hospital, Mohakhali, Dhaka, Bangladesh [3]Shahid Tajuddin Ahmad Medical College, Gazipur, Bangladesh

Introduction: This research was carried out with the intention to see the detection rate of HPV-16/18 E6 oncoprotein expression in different categories of cervical neoplasia and to find out its association with increasing neoplastic state, using lateral flow test "Onco E6 Cervical Test" designed for low-resource settings.

Methods: A cross-sectional study was conducted at Gynecologic Oncology Outpatient Department (OPD) of Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka, Bangladesh, from May 2018 to April 2019. Histopathologically diagnosed CIN I, CIN II, CIN III, and cervical cancer cases of age 21–70 years who were compliant to allow cervical swab collection for E6 oncoprotein test were selected by purposive sampling.

Results: E6 oncoprotein expression was 4.44% (2/45), 28.57% (4/14), 50% (2/4), and 77.78% (28/36) for CIN I, CIN II, CIN III, and cervical cancer cases, respectively. Thirty-six women of total 99 (N = 99) study participants were found to have E6 positive (detection rate 36.36%). Type distribution showed 83.33% (30/36) type 16, 13.89% (5/36) type 18, and 2.78% (1/ 36) co-infection with types 16 and 18. Considering CIN I the reference category, E6 oncoprotein expression was found associated with CIN II (OR = 6.95, p = 0.052), significantly associated with CIN III (OR = 18.10, p = 0.026), and highly significantly associated with cervical cancer (OR = 43.57, p\ 0.001).

Conclusion: Association of E6 oncoprotein expression is significant for CIN III and highly significant for cervical cancer. The presence of E6 oncoprotein expression in CIN lesions can

identify true cancer precursors with risk of cancer development in the future and can be utilized in cancer screening programs.

Keywords: Cervical Intraepithelial Neoplasia; Uterine Cervical Neoplasms; Human papillomavirus 16; Biomarkers; Oncogene Proteins, Viral; Papillomaviridae

---

ABS-128

Treatment Outcome of Cervical Cancer Patients in a Tertiary Care Cancer Centre in Bangladesh

Sushmita Bardhan

Introduction: Cervical cancer is the fourth common malignancy in women worldwide and the second leading malignancy and cause of death among Bangladeshi women. As there is no published information regarding outcomes among those treated from cervical cancer, this study is conducted at a short scale in a tertiary cancer center in Bangladesh.

Methods: Total 210 patients of cervical cancer of different stages who came and completed their treatment from January to December 2017 in National Cancer Institute and Research Center, Dhaka and came for at least one follow-up visit were selected by purposive sampling technique. These patients followed up to 2 years. Descriptive statistics were used to summarize patient and treatment related variables and Kaplan-Meier analysis was performed for survival analysis.

Results: The mean age was 48 years (range:25-80). Squamous cell carcinoma was the most common histology (88.1%) and 75% patients were in advanced stage, among them 50% were FIGO stage II B. Most common treatment modalities was CT followed by CCRT & ICRT (38%).The 2year disease free survival (DFS) across stage was 97%.DFS was 100% for stage I disease. Most important predictor of DFS was FIGO staging (Stage II vs. Stage IV:98% vs 25%). Long duration of treatment observed among patients (16 +_6.9)weeks which significantly affect the outcome. Both the treatment modalities and treatment duration were seen the significant relations with residual disease. About 11% residual disease found (surgery vs CT+CCRT+ICRT:0 vs 78.3%) among them the mean duration of treatment was 21 weeks.18 recurrence disease observed within 24 months follow up (9 local,7 distant and 2 both).Treatment duration also found as a significant relation with recurrence (mean 21 weeks) but there is no significant relation found with treatment modalities received with recurrence disease. There is no significant relation found with histopathological type and tumor grade with survival, residual or recurrent disease.

Keywords: Uterine Cervical Neoplasms; Tertiary Healthcare; Treatment Outcome; Bangladesh

---

ABS-129

Total Antioxidant Capacity and Lipid Peroxidation Status in Cervical Cancer Patients Compared with Women Without Cervical Cancer in Bangladesh

Taslima Nigar[1] **Annekathryn Goodman**[2], **Shahana Pervin**[1]

[1]*Department of Gynecological Oncology, National Institute of Cancer Research and Hospital, Mohakhali, Dhaka, Bangladesh;*
[2]*Division of Gynecologic Oncology, Massachusetts General Hospital, Boston, MA, USA*

Introduction: Over the past several decades, research has suggested reactive oxygen species act as cofactors for cervical cancer development. The aim of this study is to evaluate the antioxidant and lipid peroxidation status in cervical cancer patients in Bangladesh.

Methods: From December 2017 to 2018, a cross-sectional observational study was conducted on 50 cervical cancer patients and 50 controls. Plasma levels of lipid peroxidation and total antioxidant capacity were measured. The Student's t-test was used for statistical analysis. P values less than 0.05 were taken as a level of significance.

Results: There was a significant reduction in total antioxidant levels in patients with cervical cancer, 972.77 ± 244.22 SD lmol equivalent to ascorbic acid/L, compared to normal controls, 1720.13 ± 150.81 SD lmol equivalent to ascorbic acid/ L (P \0.001). Levels of lipid peroxidation were found to be significantly higher in cervical cancer, 7.49 ± 2.13 SD lmol/ L, than in women without cervical cancer, 3.28 ± 0.58 SD mol/L (P\ 0.001). The cervical cancer patients had significantly higher levels of oxidative stress index (0.83 ± 0.31) in comparison to controls (0.19 ± 0.04) (P \0.001).

Conclusion: There was an increased oxidative stress index due to imbalance between lipid peroxidation generation and total antioxidant capacity in cervical cancer patients. Further studies are needed to explore the role of oxidative stress as a cofactor for cervical carcinogenesis.

Keywords: Antioxidants; Lipid Peroxidation; Uterine Cervical Neoplasms; Cervical Intraepithelial Neoplasia; Malondialdehyde; Bangladesh

---

ABS-130

Evaluation of the Factors Associated with the Delay in Initiation of Treatment of Advance Stage Cervical Cancer Patients

Dr. Tohmina Akhter

Introduction: Cervical cancer is the 2nd most common cancer in women and third leading cause of female cancer death in Bangladesh. Delay in initiation of treatment in advanced stage cervical cancer patients is one of the most important causes for significant morbidity and mortality. Identification of contributing factors associated with the delay is crucial to overcome the barrier for initiation of effective treatment in appropriate time. Objective of the study was assessment of the factors that lead to delay in diagnosis and treatment of advanced stage cervical cancer patients.

Method: This observational cross-sectional study was conducted from November 2019 to October 2020 in the Gynecological Oncology department of National Institute of Cancer Research and Hospital, Dhaka. One hundred and thirty-eight patients of advanced stage cervical cancer were included in the study by sampling.

Results: The mean age of the patients was 48.74 (±9.57) years and 30.4% patients were illiterate. Monthly family income was 10,000 to 30,000 BDT in 58.70% patients. In 70.29% patient's duration of primary delay was more than 60 days and in 83.33% of patients the health system interval was more than 30 days. Patient related factors include low monthly income, resident of rural areas, embarrassment, fear, lack of knowledge regarding cervical cancer, contacting non-medical persons prior to first medical person that were the predictor of primary delay more than 60 days (p value <.05). Health care provider's delay related factors include not

performing per speculum examination at initial consultation, misdiagnosis, consultation more than three times in different health facilities prior to referral to tertiary care center hospital hospital were associated with delay in health system more than 30 days (P value <.05).Health care system delay related factors include long distance of the primary health care facility and the distance from tertiary care center hospital from the residence (p value<.05).

Conclusion: Illiteracy, lack of awareness regarding cervical cancer, health seeking behavior, poor income status was associated with primary delay. Nonperformance of per speculum examination in initial consultation, misdiagnosis, inappropriate management and delay in referral to cancer treatment center by HCP were the contributing factors for HCP delay. Lack of availability and accessibility of health services and limitation of radiotherapy resources led to health care system delay.

Keywords: Uterine Cervical Neoplasms; Delayed Diagnosis; Age Factors

Distribution of Type Specific Human Papilloma virus DNA among women of cervical cancer in a tertiary level hospital

Dr. Gopa Kundu

Introduction: Infection with high-risk human papilloma virus (HPV) has been recognized as a causal factor for development of cervical precancerous and cancerous lesions. So far more than 150 types of HPV are identified. Globally its prevalence is 11.7 %. Their distribution varies from country to country, also from region to region. Introduction knowledge about the distribution of HPV genotypes in invasive cervical cancer is crucial to guide the introduction of prophylactic vaccines. We aimed to provide novel and comprehensive data about the genotype distribution in patients with invasive cervical cancer in a university hospital of Bangladesh. The current study was designed to see the distribution of type specific Human Papillomavirus DNA among cervical cancer patients in Bangabandhu Sheikh Mujib Medical University.

Methods: The study was a cross sectional, observational and single centered study. It was carried out in the department of gynecological oncology, BSMMU, Dhaka from January 2019 to June 2019. Method of sampling was purposive sampling according to the availability of patients. Total 46 women were included in the study. Women with histopathologically diagnosed cervix carcinoma of the cervix were included in this study. Swab was collected from endocervix and also from ectocervix in case of growth or ulcer and 14 high risk genotype of HPV (type 16,18,31,33,35,39,45,51,52,56,58,59,66 and 68) were detected by Real Time Polymerase Chain Reaction (PCR) using AmpliSens HPV High Carcinogenic Risk (HPV HCR) genotype-titre-FRT PCR kit, Russia after sample processing and DNA extraction. Then data were collected and analyzed using SPSS version 22 software for windows.

Results: HPV type 16 was detected in 35 cases (76.1%) followed by type 18 in 4 (8.7%) cases of cervical carcinoma. HPV 39, 56 and 68 were also detected, each was in 1 case (2.2 %).   We also found 1 co-infection (2.2%) with HPV 33+35. HPV 16 was detected in 79.4 % of squamous cell carcinoma and in 70 % of adenocarcinomas. HPV 18 was detected in 5.9 % of squamous cell carcinoma and 20 % of adenocarcinomas. HPV 39 was detected in one case of small cell

carcinoma (100 %). One case of HPV 68 (2.9%) and one co- infection with HPV 33+35 (2.9 %) were found in squamous cell carcinoma. One case of HPV 56 (10 %) was detected in adenocarcinoma of the cervix. HPV DNA was not found in 3 cases of squamous cell carcinoma of the cervix.

Conclusion: The distribution of HPV infection among Bangladesh women is similar to other regions of Asia. However, type specific patterns are different. The study findings will guide the formulation of HPV vaccination policies in Bangladesh monitoring the impact of vaccination programmes, to predict the efficacy of cost-effective prophylactic vaccine, introduction of newer generation vaccines and finally prevention of cervical carcinoma.

Keywords: Uterine Cervical Neoplasms; Papillomaviridae; Hospitals; DNA; Vaginal Smears

---

ABS-132

Evaluation of Surgico-Pathological Risk Factors in Patients with Early Stage Cervical Cancer Who Need Adjuvant Treatment

Dr. Dilruba Yeasmin

Introduction: Cervical cancer is a clinically staged cancer. Up to FIGO stage IIA radical hysterectomy is the standard care of management. Usually, adjuvant treatment is not necessary in most of these cases. However, to prevent recurrence in patients with high-risk prognostic factors adjuvant treatment is needed.

Methods: This cross-sectional observational study was conducted from July 2018 to June 2019 at the Department of Gynae Oncology, National Institute of Cancer Research and Hospital (NICRH), Dhaka. Fifty-nine patients of early-stage cervical cancer who underwent radical hysterectomy with bilateral pelvic lymph node dissection were included in this study.

Results: Most of the patients were in the age group of 46-50 years. Twenty (33.9%) patients were of stage IB1 disease. Seventeen patients (28.8%) were in stage IB2. As the stage increases the rate of lymph node (LN) metastasis also increases and this association was statistically significant ($p<0.05$). Size of the tumor more than 2 cm is an important determinant of prognosis and has a definite effect on LN metastasis. LN involvement is more in patients with lympho-vascular space invasion (LVSI). Patients with LN metastasis are at more risk of disease recurrence. Patients with positive LN, parametrial invasion and positive vaginal margin are grouped as high risk whereas tumor size, deep stromal invasion, LVSI, and histologic type and grade were grouped as intermediate risk.

Conclusion: Further in-depth multi-center study with long follow-up period is strongly advocated to see the impact of risk factors on recurrence.

Keywords: Uterine Cervical Neoplasms; Risk Factors; Neoplasm Staging; Adenocarcinoma

How WASH Improvement Helps Attaining Universal Health Coverage (UHC)

Nurullah Awal[1]

[1]WaterAid Bangladesh

Introduction: WASH largely attempts to ensure safe water, safe sanitation and healthy hygiene practices. WASH in health care facilities (HCFs) is a global initiative, underpinned by the agreed WHA Resolution 72.7, to integrate and align WASH components towards improved, acceptable, accessible and comprehensive health care.

Methods and Results: WASH plays a vital role in all four components of universal health coverage - promotive, preventive, curative and rehabilitative. WaterAid's innovative, context-specific interventions demonstrate ample examples in Bangladesh and other countries to improve use of health care facilities and enhance health system development.

Different key WASH interventions ensure safe and running water, separate and gender-friendly toilets, create hand washing suitable options and enhance inclusiveness alongside capacity development of the clinic management committee. These measures increase a multitude of factors of patient care including decreased pressure at the higher-level facilities; nurturing higher confidence and participation among local stakeholders; in addition to enhanced governance and accountability measures.

Conclusion: WaterAid Bangladesh (WAB) has developed the WASH guideline for the community clinics, the first and primary tier of health care, which have been endorsed by the government of Bangladesh. These guidelines and following interventions helped WAB understand where to direct WASH investments effectively at the secondary level in the sub-district hospitals (UHCs) and then also at the district level health facility incorporating IPC and healthcare waste management towards a comprehensive health coverage.

Keywords: Universal Health Insurance; Universal Health Care

Asthma and Associated Factors Among Adult Rural Population in Bangladesh: Results from A Cross-Sectional Survey

Shagoofa Rakhshanda[1], Lingkan Barua[2], Mithila Faruque[2], Palash Chandra Banik[2], Riffat Ara Shawon[1], AKM Fazlur Rahman[1], Saidur Rahman Mashreky[1,2]

[1]Department of Public Health Sciences, Center for Injury Prevention and Research, Bangladesh, Dhaka, Bangladesh; [2]Department of Noncommunicable Diseases, Bangladesh University of Health Sciences, Dhaka, Bangladesh

Introduction: Over a decade, the prevalence of asthma remained around 7% in Bangladesh. Although asthma causes a great deal of morbidity among children and adults, few epidemiological data are available on the prevalence in Bangladesh. This study attempted to determine the prevalence of asthma, and its modifiable lifestyle predictors in a rural population of Bangladesh.

Method: This study was part of a cross-sectional study that applied the WHO Package of Essential Noncommunicable Disease Interventions (WHO PEN) in a rural area of Bangladesh to assess the burden of diabetes, hypertension and their associated risk factors. The sampling technique was census. Anthropometric measurement, and data on sociodemographic characteristics and behavioral risk factors were collected following the standard protocol described in the WHO STEPSwise approach. Analysis included means of continuous variables and **multinomial logistic regression** of factors.

Result: The overall prevalence of asthma was found to be 4.7%. Asthma was most predominant among people above 60 years (8.4%). Higher asthma was noted among males (5.5%) than females (4.3%), and among underweight people (6.0%) than normal weight, overweight or obese people (4.2%, 4.8% and 4.1%, respectively). The odds of being asthmatic will decrease by 0.64, and 0.46 if a respondent is less than 45 years of age, and consumed processed food respectively. Underweight, smoking, and past SLT use increase the odds of being asthmatic by 0.36, 1.09, and 0.73, respectively.

Conclusion: The study emphasized asthma to be a public health concern in Bangladesh. Specific health messages for targeted populations may help improve the asthmatic status and reduce the behavoural risk factors associated with asthma. Findings from further explorations may support policies and programs in future.

Keywords: Rural Population; Cross-Sectional Studies; Bangladesh; Asthma; Urban Population; Prevalence

---

Implementing PEN Intervention Model in Reducing Hypertension, Diabetes and Their Risk Factors in A Rural Community in Bangladesh

Saidur Rahman Mashreky[1,2], Shagoofa Rakhshanda[1], Lingkan Barua[2], Mithila Faruque[2], Palash Chandra Banik[2], Riffat Ara Shawon[1], AKM Fazlur Rahman[1]

[1]Department of Public Health Sciences, Center for Injury Prevention and Research, Bangladesh, Dhaka, Bangladesh; [2]Department of Noncommunicable Diseases, Bangladesh University of Health Sciences, Dhaka, Bangladesh

Introduction: Diabetes and hypertension are two of the leading chronic health conditions causing mortalities and morbidities in Bangladesh and these two have many overlapping risk factors. This study aimed to test the feasibility to implement WHO Package of Essential Noncommunicable Disease Interventions for reduction of diabetes and hypertension and their selected risk factors.

Method: The study was conducted in Dhangora Union of Sirajganj district, where CIPRB has an on-going surveillance. Adult population (18 years and above) were the target group for intervention. The total population was 35000, of which a total of 22270 people were reached. A digital platform was applied to implement the intervention. A comprehensive package was developed for screening, referral, diagnosis and management of hypertension and diabetes. The existing hypertension and diabetes status and risk factors were assessed following WHO STEPwise approach to surveillance (STEPS) tool at household level, and measuring physical and biochemical parameters at community clinic and finally referred to Upazila health complex.

Results: The results showed that of the total 22270 people interviewed at household level 11244 (50.5%) attended the community clinics for diabetes and hypertension screening of whom, 3059
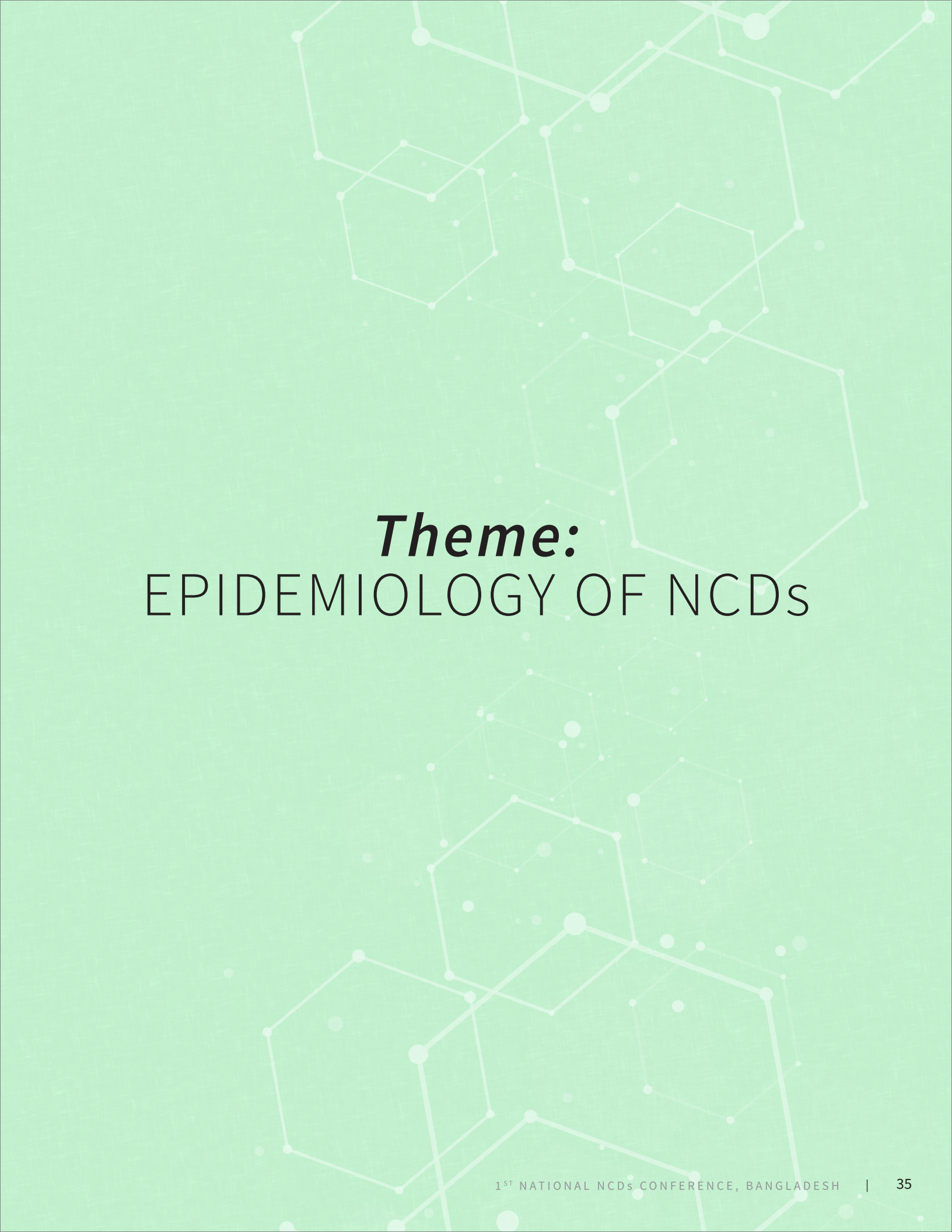
(27.2%) were referred to UHC for diagnosis and management. Among these people 1307 (42.7%) actually attended the UHC, and 995 (76.3%) people among them were diagnosed with the condition and were given treatment accordingly. The prevalence of diabetes among those who visited the community clinic was found to be 9.1%, prevalence of hypertension was 25.5%. However, known prevalence was 3.9% and 12.6 for diabetes and hypertension respectively.

Conclusion: These results imply that the implementation of PEN protocol within the primary health care services in the country is feasible and acceptable among the community. It also implies that the protocol can verily identify new cases of NCDs and facilitate the better diagnosis and management.

Keywords: Rural Population; Hypertension; Risk Factors; Diabetes Mellitus; Bangladesh

ABSTRACTS FOR THE SCIENTIFIC SESSIONS

Theme:
EPIDEMIOLOGY OF NCDs

Prevalence of Type 2 Diabetes and Pre-Diabetes Among Pulmonary and Extrapulmonary Tuberculosis Patients of Bangladesh: A Cross-Sectional Study

Afsana Habib Sheuly (ASheuly@hki.org)[1], S.M. Zahid Hassan Arefin[3], Lingkan Barua[4], Muhammed Shahriar Zaman[5], Hasina Akhter Chowdhury[2, 6], Dipak Kumar Nag[7]

[1]Helen Keller International, Bangladesh; [2]Department of Biostatistics, Bangladesh University of Health Sciences (BUHS); [3]Department of Epidemiology and Biostatistics, Institute of child and Mother Health, Bangladesh; [4]Department of Noncommunicable Diseases, Bangladesh University of Health Sciences (BUHS), Bangladesh; [5]School of Rehabilitation Therapy, Queen's University, Kingston, Ontario, Canada; [6]Research Coordinator, Centre for Injury Prevention and Research Bangladesh; [7]National Institute of Ophthalmology and Hospital, Dhaka, Bangladesh

Introduction: We estiimated the prevalence of Type-2 diabetes (T2D) and pre-diabetes (pre-DM) among patients with pulmonary tuberculosis (PTB) and extrapulmonary tuberculosis (EPTB) in Bangladesh. We also examined the association between type of TB and hyperglycemia.

Methods: We recruited 350 TB patients (175 PTB and 175 EPTB) from two tertiary care hospitals specialized for TB treatment in a cross sectional study. Oral glucose tolerance tests and fasting plasma glucose measurements were carried out for unknown glycemic status and only for those with previously known diabetes, respectively.

Results: Overall, the prevalence of T2D and pre-DM were 19.1% (new 85.1%, old 14.9%) and 34.3%, respectively. The risk factors were highly prevalent among the patients with EPTB; a higher proportion of T2D (26.3%) and pre-DM (34.3%) was detected among the patients with PTB. The proportion of impaired fasting glucose was low in both groups, but a high trend of impaired glucose tolerance was observed across the groups, with a higher proportion (35.4%) in the PTB group. Both pre-DM and T2D showed a significantly higher odds (pre-DM, OR: 4.214; CI: 2.441-7.274; *P*<0.001 and T2D, OR: 3.652; CI: 2.044-6.525; *P*<0.001) for having PTB.

Conclusion: The prevalence of T2D and pre-DM was higher among the patients with PTB and it (PTB) appeared as a predictor of hyperglycemia. It indicates the primary intervention should target the patients with PTB to get the maximum benefit of screening to reduce the number of risk factors, disease burden, and subsequent complications.

Keywords: Diabetes Mellitus, Type 2; Tuberculosis, Pulmonary; Cross-Sectional Studies; Prediabetic State; Prevalence

Community Perception on Non-Communicable Diseases Risk Behavior in Bangladesh: A Qualitative Exploration

A.B.M. Rasheduzzaman (arasheduzzaman@bangladesh-ccp.org)[1], Nazrul Haque[1], Kapil Ahmed[2]; H. M. Miraz Mahmud[1], Zannatul Ferdous[1]

[1]Bangladesh Center for Communication Programs; [2]Bangladesh Tobacco Control Research Network

Introduction: Non-Communicable Diseases (NCDs) are a fast-growing multi-dimensional public health burden of Bangladesh like in other low- and middle-income countries. Most of the NCDs have common lifestyle-related risk factors. The study seeks to explore the knowledge, behaviors,

and practices related to modifiable risk behavior and identify the barriers that impact on overall NCDs status.

Method: We conducted 40 Key informants Interviews (KII) with community leaders, academicians, media personnel, policymakers; 160 In-depth interviews (IDI) with health service providers, local govt. representatives, community and religious leaders; and 8 FGDs with persons at risk or suffering from NCDs. Four thematic areas; community knowledge and perceptions about NCDs and risk factors, community behaviors related to NCD risk factors, prevention and control of NCDs, and barriers for NCDs prevention were explored.

Results: The findings revealed that many people knew about major NCDs, especially diabetes, high blood pressure, stroke, cancer, and heart disease, but fewer had accurate knowledge on the modifiable risk behaviors and their relationship with NCDs. Youth were less aware about health effects of junk and street food. Majority of the people had unclear concepts about a balanced diet, little concerns about healthy lifestyle, and did not visit a doctor until being seriously ill. There were also some popular beliefs, including 'cancer is the outcome of sin and God's punishment', 'fried salt has no harmful effect', 'taking salt at the beginning of the meal is *Sunnah*', 'energy drink brings refreshment and energization' etc. People were ignorant about healthy practices. Poverty, lack of education, inadequate or inaccurate information, changing food habits and lifestyle, and lack of financial stability, service integration and government initiatives were identified as a few key barriers.

Conclusion: The study concluded that peoples' NCDs related behavior was mostly guided by socio-cultural factors which determined their practices and responses related to NCDs.

Keywords: Noncommunicable Diseases; Risk-Taking; Patient Acceptance of Health Care; Perception

Dementia Risk and Its Associated Risk Factors Among Coronary Artery Disease Patients Attending a Tertiary Cardiac Hospital of Dhaka City

Fardina Rahman Omi (fardinarahmanomi@gmail.com)[1], Lingkan Barua[1], Palash Chandra Banik[1], Syed Mosfiqur Rahman[2] Mithila Faruque[1]

[1]Department of Noncommunicable Diseases, Bangladesh University of Health Sciences (BUHS), Dhaka, Bangladesh; [2]Ibrahim Cardiac Hospital and Research Institute, Dhaka, Bangladesh

Introduction: The effect of coronary artery disease (CAD) on the future development of dementia is not well studied worldwide. Hence, this study aimed to predict the risk of developing dementia in established CAD patients using a mobile application-based risk prediction tool namely "Cardiovascular Risk Factors, Aging, and Incidence of Dementia" (CAIDE) risk score and also identified risk factors associated with those patients.

Methods: This cross-sectional study was conducted among 280 stable CAD patients aged 40-59 years who were admitted in Ibrahim Cardiac Hospital and Research Institute, a tertiary cardiac hospital of Dhaka, Bangladesh for coronary revascularization**.** The risk of future dementia (20-years later) was determined using a CAIDE risk score that ranges from 0-15. The risk was categorized as low (0-5)', 'moderate (6-7)' and 'high (8-15)'

Results: CAIDE risk score application among the 280 participants demonstrated that 30.7% had high-risk, 32.9% had moderate-risk, and 36.4% had a low-risk of developing dementia. Nine factors were identified to have higher odd (>1) of developing risk of future dementia compared to the low-risk groups including, smokeless tobacco (moderate-risk, OR 1.134; high-risk, OR 1.1546), duration of added salt intake (moderate-risk, OR 1.917; high-risk, OR 1.054), duration of diabetes (moderate-risk, OR 1.089; high-risk, OR 1.024), HbA1C (high-risk, OR 1.364) LDL-C level (moderate-risk, OR 1.012; high-risk, OR 1.027), HDL-C level (moderate-risk, OR 1.054; high-risk, OR 1.071), TG level (moderate-risk, OR 1.011; high-risk, OR 1.003), urea (moderate-risk, OR 1.022; high-risk, OR 1.023) and ejection fraction (moderate-risk, OR 1.054).

Conclusion: This study identified that more than half of the CAD patients were at a high risk of developing future dementia associated with several risk factors. Further research on a large cohort would be necessary to predict the risks of dementia in CAD patients and adopt a comprehensive care model for prevention of dementia.

Keywords: Dementia, Coronary Artery Disease; Risk Factors, Coronary Angiography

---

ABS-006

Influence of Parental Tobacco Use on Initiation and Use of Tobacco among their Children

H. M. Miraz Mahmud (hmahmud@bangladesh-ccp.org)[1], Nazrul Haque[1], Kapil Ahmed[2], A. B. M. Rasheduzzaman[1], Tahmina Begum[1]

[1]*Bangladesh Center for Communication Programs;* [2]*Bangladesh Tobacco Control Research Network*

Introduction: Tobacco, a leading risk factor for several non-communicable diseases, is a global public health concern. Bangladesh is one of the top countries in the world bearing a heavy burden of tobacco consumption, and prevalence of smoking is rising among adolescents, albeit the role of family has not been studied much. This study assessed the parental tobacco use and its impact on initiation and use among their children.

Methods: The study was cross-sectional with a quantitative approach covering the sample of 4043 adults (aged 50+) with children (aged 13+) selected using a two-stage stratified cluster sampling in Bangladesh. Statistical tests were performed to determine the association of tobacco use between parents and their children.

Results: Overall, 60.9% of the study respondents currently use tobacco and 71.5% parents, either father or mother, currently use tobacco; smoking 33.3% and smokeless 55.7%, while ever tobacco user parents were 85.2%; smoking 64.3% and smokeless 63.5%. Children's tobacco use was significantly higher among the parental ever use of tobacco compared to non-user groups (p<0.001). About 62.0% parents had at least one child who used tobacco and its association between parental tobacco use was found statistically significant (41.7% vs. 29.2%, p<0.001). Even the number of tobacco user children was significantly higher for smoking (p<0.001) and smokeless (p<0.001) tobacco among the parents who ever used tobacco than non-users. Most of the respondents perceived that society would feel bad if their children smoke tobacco, while this proportion was less for their children's smokeless tobacco use.

Conclusion: The prevalence of tobacco consumption is higher among children who had a parent having a history of consumption of tobacco. The tobacco control programs should be revisited targeting parental tobacco use for reducing the risk of early initiation of tobacco use among their children.

Keywords: Tobacco use; Parents; Smoking

Determinants of Vasculitis in Systemic Lupus Erythematosus Patients

Shadab Saud Sunny (shadab.saud.sunny@gmail.com)[1], Md. Nazrul Islam[1], A.T. M. Asaduzzaman[2]

[1]*Department of Rheumatology, Bangabandhu Sheikh Mujib Medical University (BSMMU), Shahbag, Dhaka-1000, Bangladesh;*
[2]*Department of Dermatology, Bangabandhu Sheikh Mujib Medical University (BSMMU),Shahbag, Dhaka-1000, Bangladesh*

Introduction: Among the manifestations of SLE, vasculitic presentation is common. This study was aimed to identify the predictors of vasculitis in SLE patients.

Methods: The study was conducted in the Department of Rheumatology, BSMMU, Dhaka from December 2019 to January 2021. A total of 168 consecutive confirmed cases of SLE patients were enrolled and evaluated for the features of vasculitic rashes, digital gangrene, mesenteric vasculitis, mononeuritis multiplex. The cutaneous vasculitis was confirmed by a dermatologist. Study subjects were grouped into vasculitic and no vasculitic groups. The disease activity and damage were assessed using SLEDAI and SLICC/ACR DI. The rate of vasculitis was expressed in percentage. The multivariate logistic regression analysis was done to determine the independent predictors of vasculitis in SLE. P value <0.05 was considered significant.

Results: Rate of lupus vasculitis was 14.3%. The features shown significant difference between vasculitic and no vasculitic groups were: ACLE (79.2% vs. 18.8%, p<0.001), oral ulcer (70.8% vs. 13.2%, p<0.001), alopecia (83.3% vs. 27.1%, p<0.001), Raynaud's phenomenon (20.8% vs. 5.6%, p=0.011), fever (54.2% vs. 25.0%, p=0.002), arthritis (70.8% vs. 29.9%, p<0.001), pregnancy loss (68.8% vs. 32.7%, p=0.003), lupus nephritis (25.0% vs. 45.1%, p=0.032), seizure (8.3% vs. 0.7%, p=0.027), pleurisy (8.3% vs. 0.7%, p=0.027), leucopenia (8.3% vs. 1.4%, p=0.049), anti-ds-DNA positivity (87.5% vs. 62.5%, p=0.008), hypocomplementemia (87.5% vs. 59%, p=0.003), higher mean SLEDAI (p<0.001) and SLICC/ACR damage index score (p<0.001). Though not significant the rate of antiphospholipid antibody positivity was high (69.2% vs. 42.9%, p=0.052) in vasculitis group. In multivariate logistic regression analysis, higher SLEDAI score (OR = 1.296, 95% CI =1.114-1.508) was positively and lupus nephritis (OR= 0.055, 95% CI =0.007-0.413) was negatively associated with lupus vasculitis.

Conclusions: In SLE, vasculitic presentation is common. Higher the SLEDAI score greater the chance of lupus vasculitis.

Keywords: Lupus Erythematosus, Systemic; Vasculitis.

Malnutrition in All Its Forms and Associated Factors Affecting the Nutritional Status of Adult Rural Population in Bangladesh: Results from A Cross-Sectional Survey

Jannatul Ferdous[1] (jannat@bsmmu.edu.bd)

[1]*Bangabandhu Sheikh Mujib Medical University*

Introduction: The burden of malnutrition is widely evaluated in Bangladesh in different contexts. However, most of them determine the influence of sociodemographic factors, which have limited scope for modification and design intervention. This study attempted to determine the prevalence of underweight, overweight and obesity and their modifiable lifestyle predictors in a rural population of Bangladesh.

Methods: This study was part of a cross-sectional study that applied the WHO Package of Essential Non-communicable Disease Interventions in a rural area of Bangladesh to assess the burden of diabetes, hypertension and their associated risk factors. The sampling technique was census. Anthropometric measurement and data on sociodemographic characteristics and behavioural risk factors were collected following the standard protocol described in the WHO STEPwise approach.

Results: The mean body mass index of the study population was 21.9 kg/m^2. About 20.9% were underweight, 16.4% were overweight and 3.5% were obese. Underweight was most predominant among people above 60 years, while overweight and obesity were predominant among people between 31 and 40 years. Higher overweight and obesity were noted among women. Employment, consumption of added salt and inactivity increased the odds of being underweight by 0.32, 0.33 and 0.14, respectively. On the other hand, the odds of being overweight or obese increased by 0.58, 0.55, 0.78, 0.21 and 0.25 if a respondent was female, literate, married, housewife and consumed red meat, and decreased by 0.38 and 0.18 if a respondent consumed added salt and inadequate amounts of fruits and vegetables, respectively. Consumption of added salt decreases the odds of being overweight or obese by 0.37.

Conclusions: The study emphasized malnutrition to be a public health concern in spite of the dynamic socio demographic scenario. Specific health messages for targeted populations may help improve nutritional status. Findings from further explorations may support policies and programmes in the future.

Keywords: Nutritional Status; Cross-Sectional Studies; Rural Population; Malnutrition

Association of Serum TNF-α and IL-1β Level in Axial Spondyloarthritis Patients with Depression: A Case-Control Study

Md. Nazrul Islam[1], S M Ahamed (smahamedss34@gmail.com)[2], Shirin Tarafder[1], AK Ahmedullah[1]

[1]Department of Rheumatology, BSMMU, Shahbag, Dhaka, Bangladesh; [2]Department of Microbiology and Immunology, BSMMU, Shahbag, Dhaka, Bangladesh

Introduction: Cytokines (TNF-α and IL-1β) are related to both depression and disease activity of axSpA. This study aimed to determine the association of serum TNF-α and IL-1β in axSpA patients with depression.

Methods: This case-control study was conducted in the Department of Rheumatology, BSMMU, Dhaka. A total of 252 consecutive axSpA patients (123 depressed and 129 non-depressed) were enrolled. Disease activity (BASDAI, ASDAS-CRP, and ESR), quality of life (ASAS-HI), and depression (WHO-5 Well-Being scale, PHQ-9, and MDHAQ-DEP) were assessed. TNF-α and IL-1β were measured in all subjects.

Results: The level of Serum TNF-α and IL-1β (pg/ml) in depressed and non-depressed axSpA was 19.7, 18.0, p= 0.84 and 32.3, 21.2, p= 0.04, respectively. The mean score difference of BASDAI by 0.7, ASDAS-CRP by 0.4, ASDAS-ESR by 0.5, ESR by 12.3 mm/h, CRP by 10.5 mg/L, and ASAS-HI by 3.13 was higher in the depressed subjects with a 95% confidence interval. The prevalence of depression was 49.1%, 56.1%, and 61.3% among 252 subjects using the WHO-5 Well-Being scale, PHQ-9, and MDHAQ-DEP questionnaire respectively. The predictors of depression were associated peripheral joint involvement in axSpA (OR= 1.07, p= 0.02), BASDAI (OR= 1.54, p= 0.04) and ASAS-HI (OR= 1.39, p= 0.00) with a 95% confidence interval. After sub-group analysis, IL-1β was associated with depression in subjects ≥40 years of age, disease duration ≤5 years, and peripheral joint involvement (p= 0.03, 0.00, and 0.01, respectively). Serum TNF-α was significantly high only in the depressed women of axSpA (p= 0.03).

Conclusions: Serum IL-1β in the depressed axSpA patients and TNF-α in the depressed female axSpA patients were significantly high. Associated peripheral joint involvement in axSpA, BASDAI score, and ASAS-HI score were the predictors of depression.

Keywords: Case-Control Studies; Depression; Interleukin-1; Spondylitis, Ankylosing; Spondylarthritis

Evaluation of Patient with Digital Ischemia for the Etiology: A Cross Sectional Study in the Rheumatology Department

Bidhan Neupane (npnvidhan@gmail.com), Md Nazrul Islam, Abul Khair Ahmedullah

Department of Rheumatology, Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka, Bangladesh

Introduction: Digital ischemia is an uncommon condition and its diagnosis and management are practically challenging. Patients with different diseases suffer from this problem. Information on digital ischemia is lacking in the resource constraint settings. This study was aimed to determine the etiology of digital ischemia.

Methods: A cross sectional study was conducted in the rheumatology department of BSMMU, Dhaka, from September 1, 2020 to August 31, 2021. A total of 25 consecutive men and women with digital ischemia were enrolled. Each patient was assessed with classification or diagnostic criteria relevant to the evaluation of digital ischemia. Based on the clinical features and laboratory reports, study subjects were divided into vasculitis and vasculopathy. For the nomenclature, the 2012 International Chapel Hill Consensus Conference on the Nomenclature of Vasculitides was used. Diagnosis of digital ischemia was expressed in number and percentage.

Results: Among 25 patients, most of the cases (76%) were connective tissue disease. Vasculitis was found in 15 subjects (60%) and the remaining 10 (40%) had vasculopathy. In this study, large vessel vasculitis (Takayasu arteritis) was seen in 1 patient (4%) and the other 14 were diagnosed as vasculitis associated with systemic disease. Out of them, 11 cases (44%) were lupus vasculitis, 2 (8%) were rheumatoid vasculitis and 1 (4%) was dermatomyositis. In the vasculopathy group, 5 cases (20%) were systemic sclerosis, 4 (16%) were peripheral arterial disease and 1 (4%) was primary antiphospholipid syndrome. Fever, arthralgia/arthritis and CRP were statistically significant (p-value; 0.01, 0.01 and 0.04 respectively) in the vasculitis patients. Arthralgia/arthritis was an independent factor for vasculitis {B= -.468, 95% CI (-.816 -.120)}.

Conclusions: In a tertiary care center, vasculitis associated with systemic disease and systemic sclerosis was the common cause of digital ischemia in the vasculitis and vasculopathy patients respectively.

Keywords: Cross-Sectional Studies; Rheumatology; Ischemia

ABS-021

Assessment of Perceived Stress and Stressors Among Medical Students: A Cross Sectional Study in Dhaka, Bangladesh

Sharmin Ahmed[1], Fahmida Akter[2]

[1]BRAC; [2]National Institute of Preventive and Social Medicine

Introduction: Despite being one of the hardest curriculums requiring academic excellence, there is a lack of studies on stress and stressors among the medical students. The objectives of the study are to assess perceived stress, stressors and to find the association of stressors among stressed cases.

Methods: A cross-sectional study was conducted among medical students of 1st to 5th year of Dhaka Medical College and Sir Salimullah Medical College from January to December 2017. Stress was assessed by using Perceived Stress Scale-14 (PSS-14) and a 33-item questionnaire was used to assess the stressors. Sociodemographic data were collected as well. Statistical analysis was conducted through Statistical Package for the Social Sciences (SPSS) 16.

Result: Response rate was 97.75% (391 among 400). The Mean age of the respondents was 21.30 ±1.948 (SD) years, more half of them were female (54.5%) and 32.5% students were in the final year of their studies. Mean perceived stressed score is 28.24 and maximum score was 39 and minimum score was 8. Half of the respondents were stressed (54%). Among the stressed, female students were prevalent. High parental expectations, frequency of examinations, vastness of academic curriculum, performance in periodic examinations were most frequently reported stressors. By logistic regression analysis, stressed cases were associated with occurrence of

psychological (OR:5.01, 95% CI; 2.44-10.29) and academic related stressors (OR: 3.17, 95% CI: 1.52-6.68)

Conclusion: The students reported higher levels of stress and the most frequently occurring stressors among the students were of psychological and academic kind. Prospective study is warranted to establish the relation between the stressors among stressed cases.

Keywords: Cross-Sectional Studies; Students, Medical; Stress, Psychological; Bangladesh

Association of Cervical Lymph Node Ratio with Clinico-Pathological Status of Oral Squamous Cell Carcinoma

HM Shahriar Rubel[1]

[1]Lecturer, Department of Oral and Maxillofacial Surgery, Dental Unit, Chattogram medical College

Introduction: Oral squamous cell carcinoma (OSCC) is the most common malignant tumour of the head and neck. The mainstay of treatment is surgery, surgery with chemotherapy and/or radiotherapy. However, patients who receive extensive treatment may still experience relapse. Therefore, it is important to improve treatment outcomes by finding reliable prognostic factors and identifying high-risk patients. The aim of this study is to evaluate and discuss the importance of lymph node ratio (LNR) in association with clinicopathological status as a potential prognostic predictor in patients with regionally metastasized OSCC.

Methods: An observational cross-sectional study was conducted in the Department of Oral and Maxillofacial Surgery, Dhaka Dental College, Bangladesh. Patients with histologically confirmed OSCC were recruited. Statistical analysis of the data was done using SPSS.

Results: Total 53 patients enrolled with a mean age of 49 ± 7.4 years. The male to female ratio was 1.1:3. The most common location of OSCC was in lower posterior alveolo-gingival mucosa (49.1%). Majority (60.4%) had LNR> 0.07. This study revealed that posterior alveolo-gingival mucosa and T2 and T3 sizes were significantly associated with high LNR (p= 0.042). Furthermore, presurgical histological grade II was significantly higher in the high risk LNR group (p=0.011). This study also found out a significant association between perineural invasion (p<0.001), increased lympho-vascular invasion and extracapsular spread (p= 0.008) with high LNR compared to low LNR.

Conclusion: We were able to demonstrate clearly that LNR is a valuable parameter to stratify patients of OSCC in association with clinicopathological status and this finding may have major clinical implications with better patient outcomes.

Keywords: Mouth Neoplasms; Carcinoma, Squamous Cell; Lymph Node Ratio; Squamous Cell Carcinoma of Head and Neck; Lymphatic Metastasis; Head and Neck Neoplasms

Status of Physical Activity and Factors Associated with Insufficient Physical Activity in 20-59 Years Old Females in Bangladesh

Sanjana Siddique (sspropa17@gmail.com)[1], Abu Abdullah Mohammad Hanif[1], Md. Mokbul Hossain[1], Fahmida Akter[1], Abhijeet Roy[1], Abu Ahmed Shamim[1], Mehedi Hasan[2], Md Showkat Ali Khan[1], Moyazzam Hossaine[2], Mohammad Aman Ullah[2], Samir Kanti Sarker[2], S M Mustafizur Rahman[2], Md Mofijul Islam Bulbul[2], Dipak Kumar Mitra[3], Malay Kanti Mridha[1]

[1]Centre for Noncommunicable Diseases and Nutrition, BRAC James P Grant School of Public Health, BRAC University, Dhaka, Bangladesh; [2]National Nutrition Services (NNS), Institute of Public Health Nutrition (IPHN), Bangladesh; [3]North-South University, Bangladesh

Introduction: Non-communicable diseases (NCDs) account for 67% percent of total deaths in Bangladesh. There are four key modifiable risk factors of NCDs, one of which is insufficient physical activity (IPA). Globally, women are more at risk of NCDs due to being physically inactive. Although women aged 20-59 years belong to the most economically productive group, there is no nationally representative study conducted in Bangladesh that explored the prevalence of IPA for NCDs among this population group. Therefore, the primary goal of the paper was to estimate the prevalence of IPA in women of 20-59 years by geographic regions and socio-demographic stratum, and identify different behavioral, socio-demographic, clinical, and anthropometric factors associated with IPA.

Method: For data collection, a multistage cluster sampling technique was employed in 82 rural, slum, and non-slum urban clusters. The weighted prevalence was estimated for IPA by several behavioral, socio-demographic, clinical, and anthropometric factors. In order to calculate the crude and adjusted prevalence ratios of IPA, Poisson regression was used with robust variance.

Result: It was observed that the prevalence of IPA among adult women in Bangladesh was 8.8%. Factors like age group 50-59 years (APR: 1.67, 95% CI: 1.19 to 2.35); residency in non-slum urban areas (APR: 1.82, 95% CI: 1.33 to 2.52), and higher sedentary time (APR: 2.29, 95 CI: 1.84 to 2.84) were associated with higher prevalence of IPA in adult women.

Conclusion: Therefore, the study identified major modifiable risk factors for IPA, such as residency in non-slum urban areas and higher sedentary time which are required to be addressed in order to design appropriate public health interventions among adult women in Bangladesh for reducing the risk of NCDs and subsequently improving their health outcome. The government should develop a national guideline for physical activity for women and conduct mass awareness and counseling programs at the primary health facilities and at the community level.

Keywords: Exercise; Young Adult; Middle Aged; Bangladesh

The Double Burden of Malnutrition Among Women Aged 20-59 Years in Bangladesh: Evidence from A Nationally Representative Cross-Sectional Survey

Sakib Rahman (sakibrahman09.sr@gmail.com)[1], Abu Abdullah Mohammad Hanif[1], Md. Mokbul Hossain[1], Fahmida Akter[1], Abhijeet Roy[1], Abu Ahmed Shamim[1], Mehedi Hasan[2], Md Showkat Ali Khan[1], Moyazzam Hossaine[2], Mohammad Aman Ullah[2], Samir Kanti Sarker[2], S M Mustafizur Rahman[2], Md Mofijul Islam Bulbul[2], Dipak Kumar Mitra[3], Malay Kanti Mridha[1]

[1]Centre for Non-Communicable Diseases and Nutrition, BRAC James P Grant School of Public Health, BRAC University, Dhaka, Bangladesh; [2]National Nutrition Services (NNS), Institute of Public Health Nutrition (IPHN), Bangladesh; [3]North-South University, Bangladesh

Introduction: Bangladesh is witnessing the existence of undernutrition with a continuous rise of overweight and obesity among females, which is a grave concern from a public health perspective. We aimed to assess the status of this double burden of malnutrition (DBM) and the associated factors among Bangladeshi women aged 20-59 years.

Methods: Data for this analysis was extracted from the Bangladesh Food Security and Nutrition Surveillance Project (round 2018–2019). A multistage clustering sampling procedure was used to select 82 rural, non-slum urban, and slum clusters from 8 divisions across the country. Asian BMI cut-offs were utilized to categorize the participants as per nutritional status. The weighted prevalence of underweight and overweight/obesity was estimated along with a 95% confidence interval (CI). Crude and adjusted prevalence ratios (APR) were measured for underweight and overweight/obesity separately, using Poisson regression with robust variance.

Results: The weighted prevalence of underweight and overweight/obesity among the females aged 20-59 years was 11.29% and 48.58%, respectively. Age (APR:1.24, 95% CI:0.92 to 1.65 for 50-59 years), residence in certain divisions (APR: 1.25, 95% CI: 0.97-1.61 for Sylhet), education (APR:0.83, 95% CI: 0.68, 1.02 for primary), watching television daily, and low waist circumference were found significantly associated with being underweight. Division of residence (APR:1.18 95% CI: 1.07, 1.27 for Chattogram), education (APR:1.09, 95%CI:1.01-1.18 for higher secondary and above), wealth status (APR:1.14, 95% CI:1.06-1.22 for highest quintiles), fruits and vegetable consumption, daily tobacco intake, high waist circumference (APR: 5.12, 95% CI: 4.64-5.65), self-reported hypertension (APR: 1.1, 95% CI: 1.05-1.14 for yes), and self-reported diabetes were found associated with overweight/obesity.

Conclusion: Attempts to reduce DBM should be a priority for the future, and interventions should take the regional and socioeconomic variations into account. Implementation of specific, targeted initiatives with multi-stakeholder and inter-sectoral involvements should be the cornerstone of the programs to combat the DBM simultaneously.

Keywords: Cross-Sectional Studies; Malnutrition; Overweight; Thinness; Bangladesh

---

ABS-030

Prevalence of and Factors Associated with Hypertension Among 20-59 Years Old Females in Bangladesh: Findings from A Nationally Representative Survey

Ali Ahsan (ali.ahsan@bracu.ac.bd)[1], Abu Abdullah Mohammad Hanif[1], Md. Mokbul Hossain[1], Fahmida Akter[1], Abhijeet Roy[1], Abu Ahmed Shamim[1], Mehedi Hasan[2], Md Showkat Ali Khan[1], Moyazzam Hossaine[2], Mohammad Aman Ullah[2], Samir Kanti Sarker[2], S M Mustafizur Rahman[2], Md Mofijul Islam Bulbul[2], Dipak Kumar Mitra[3], Malay Kanti Mridha[1]

[1]Centre for Noncommunicable Diseases and Nutrition, BRAC James P Grant School of Public Health, BRAC University, Dhaka, Bangladesh; [2]National Nutrition Services (NNS), Institute of Public Health Nutrition (IPHN), Bangladesh; [3]North-South University, Bangladesh

Introduction: In Bangladesh, morbidities and mortalities related to non-communicable diseases (NCD) have increased several folds during the recent decades. Hypertension is one of the major

risk factors of NCD. We aimed to estimate the prevalence of hypertension and the associated risk factors among the 20-59 years old women of Bangladesh.

Methods: Data for this analysis were collected as part of the Bangladesh Food Security and Nutrition Surveillance round 2018-19 from 82 randomly selected clusters covering rural, non-slum urban, and slums areas in all eight administrative divisions of Bangladesh. Multistage cluster sampling technique was followed to select study participants. The weighted prevalence of hypertension was estimated across socio-demographic, behavioral, and clinical characteristics. Crude and Adjusted Prevalence Ratios (CPR & APR) with 95% Confidence Interval (CI) were estimated.

Results: A total of 5059 women aged 20-59 years were included in this analysis. The weighted prevalence of hypertension was 24.1% (95% CI: 21.6, 26.8). The prevalence of hypertension was higher among higher age groups, rural residents, participants with no formal education, homemakers, widowed, Muslims, and belonging to the highest wealth quintile. Factors associated with hypertension were age (50-59 years, APR: 4.35, 95% CI: 3.59-5.28), maternal education (Up to primary, APR: 1.2, 95% CI: 1.05, 1.37; up to secondary, APR: 1.26, 95% CI: 1.06, 1.50), Second wealth quantile (APR:1.18, 95% CI: 1.01, 1.37), Higher waist circumference (APR: 1.87, 95% CI: 1.67, 2.09), self-reported diabetes (APR: 1.39, 95% CI: 1.23, 1.58), self-reported heart disease (APR: 1.32, 95% CI: 1.17, 1.50), and Self-reported asthma (APR: 1.19, 95% CI: 1.03, 1.37).

Conclusions: In Bangladesh, one in every four women aged 20-59 years was hypertensive. Age, maternal education, wealth index, higher waist circumference, diabetes, heart disease, and asthma played a significant role. The Ministry of Health and Family Welfare in Bangladesh should consider these factors while designing and implementing NCD programs.

Keywords: Hypertension; Middle Aged; Prevalence; Young Adult; Bangladesh

---

ABS-031

Quality of Life of Caregivers Having Children with Neurodevelopmental Disorders: A Cross-Sectional Study in Bangladesh

Anika Tasnim (tasnim.nishi.tn@gmail.com)[1], Sharmin Islam[2], Marium Salwa[1], Md. Atiqul Haque[1]

[1]Department of Public Health and Informatics (DPHI), Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka, Bangladesh;
[2]Mymensingh Medical College Hospital, Mymensingh, Bangladesh

Introduction: Although caregiving is considered a normal phenomenon for parents, delivering care to a child with neurodevelopmental disorders (NDD) can be taxing and disastrously impact parents' quality of life (QoL). This study investigated the QoL of the caregivers of children with neurodevelopmental disorders.

Method: This cross-sectional study consisted of 906 caregivers of children with NDDs. The World Health Organization Quality of Life Measure Abbreviated version (WHO-QOL BREF) and perceived stress scale (PSS-10) were used to measure the caregivers' health-related QoL and stress level. We also used a semi-structured questionnaire to measure the socio-demographic characteristics of the caregivers. The Statistical Package for Social Sciences (SPSS) was used for data analysis. A multiple regression analysis was employed to identify the significant contributors to QoL. A level p-value <.05 was regarded as statistically significant.

Results: Increased age, lower socioeconomic and educational status, PSS score, and unemployment of the caregivers are found to be negatively correlated with QoL. Additionally, caregivers having female NDD children, increasing birth order of the child, having more than one NDD child are also negatively associated with QoL. Among all the caregivers, mothers had the lowest QoL among all caregivers. The social relationships domain of QoL had the highest score (M=14.6, SD=2.0), whereas the psychological domain had the lowest score (M=12.0, SD=2.4) among the caregivers. Analysis based on the degree and type of the disability of the child could not be performed in our study. Further exploration of the degree of different developmental disabilities of the children affecting the caregivers' QoL, psychosocial support, and coping strategies is needed.

Conclusion: These findings must be considered in legislation to provide better and more targeted assistance and interventions. Psycho-social intervention programs for caregivers of children with NDDs should include techniques for improving their quality of life.

Keywords: Quality of Life; Cross-Sectional Studies; Neurodevelopmental Disorders; Caregivers; Bangladesh

---

ABS-033

Prevalence and Correlates of Smokeless Tobacco Consumption Among 20-59 Years Old Females in Bangladesh

Emmanuel M. Ford (emaford2008@gmail.com)[1], Abu Abdullah Mohammad Hanif[1], Fahmida Akter[1], Md. Mokbul Hossain[1], Abhijeet Roy[1], Abu Ahmed Shamim[1], Mehedi Hasan[2], Md Showkat Ali Khan[1], Moyazzam Hossaine[2], Mohammad Aman Ullah[2], Samir Kanti Sarker[2], S M Mustafizur Rahman[2], Md Mofijul Islam Bulbul[2], Dipak Kumar Mitra[3], Malay Kanti Mridha[1]

[1]Centre for Noncommunicable Diseases and Nutrition, BRAC James P Grant School of Public Health, BRAC University, Dhaka, Bangladesh; [2]National Nutrition Services (NNS), Institute of Public Health Nutrition (IPHN), Bangladesh; [3]North-South University, Bangladesh

Introduction: Smokeless tobacco use is high in south-Asian countries like Bangladesh, prompting public health concerns and rapid preventative initiatives. This study aimed to assess the burden of smokeless tobacco (SLT) consumption and the associated factors among 20-59 years old women in Bangladesh.

Method: A random representative sample of 5,084 women aged 20 to 59 years was recruited through a cross-sectional study. Written informed consent was obtained before data collection and anthropometric measurements. The weighted prevalence of smokeless tobacco use was calculated for the sociodemographic characteristics and other variables. A Poisson regression approach was used to estimate crude and adjusted prevalence ratios (CPR and APR) with 95% confidence intervals (CI).

Result: A sample of 5,066 women aged 20-59 years were included in the study. More than one-fourth of the women aged 20-59 years used SLT. Women 40–49 years old (APR: 3.08, 95% CI: 2.60–3.66, p<.001) and women 50–59 years old (APR: 3.19, 95% CI: 2.66–3.82, p<.001) had higher prevalence of SLT. Women without formal education (APR: 1.18, 95% CI: 1.05-1.34, p=0.007) and women with 1-5 years of education (APR:0.84, 95% CI: 0.75 -.095, p=0.007) had higher use of SLT. Women with higher education level (APR: 0.33, 95% CI: 0.26 – 0.42, p<.001) had lower use of SLT. SLT use was 0.17 times higher among women in slum areas (APR: 1.17,

95% CI: 1.10–1.55, p=0.002). The use of SLT was lower in urban (19%) locations compared to rural (28%) and slum (33%) locations.

Conclusion: Smokeless tobacco use is highly prevalent among women aged 40 − 59 years and without formal education in rural and slum areas in Bangladesh. Factors such as age, level of education, and residence can be used to identify users of smokeless tobacco**.** To address the risk associated with the use of smokeless tobacco, the government should raise a tax on its sale, stop its advertisement and provide regular health education and counseling to these women.

Keywords: Tobacco Use; Young Adult; Middle Aged; Tobacco, Smokeless; Bangladesh

Transcultural Adaptation of Bengali version of the International Physical Activity Questionnaire-Short Form Among Healthy Adult Population of Bangladesh

Anika Tasnim[1], Kamrun Nahar[1], Khandakar Fatema (khandakarfatema9@gmail.com)[1], Sabrina Mousum[1], Sharmin Islam[2], Syeda Naheed Sultana[1]

[1]*Department of Public Health and Informatics (DPHI), Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka, Bangladesh;*
[2]*Mymensingh Medical College Hospital, Mymensingh, Bangladesh*

Introduction: Physical inactivity is a risk factor for premature mortality and several non-communicable diseases (NCDs). Globally, 7.2% and 7.6% of all-cause and cardiovascular disease deaths are attributable to physical inactivity. The purpose of this study is to explore the test-retest reliability and validity of the Bangladeshi version of the IPAQ-SF questionnaires in a population-based sample of healthy individuals in Bangladesh.

Methods: The English IPAQ-SF was translated into Bengali, synthesized, back-translated, and then submitted to experts for their opinions on content validity, followed by pretesting. Then the final product (Bengali IPAQ-SF) was examined for construct (convergent and divergent validity), concurrent (correlation with a separate single item questionnaire) validity through hypothesis testing and test-retest reliability in a cross-sectional study of 78 healthy Bangladeshi individuals.

Results: IPAQ-SF has good content validity. Overall, CVI is 0.83, confirming the good content validity of the questionnaire, although we found low CVR for two items. Male and female Metabolic equivalent task (MET) mean scores were 630 and 489 (p=0.255), respectively. The mean score of MET between the below, graduates and above graduation groups, on the other hand, was discovered to be 510 and 555 (p=0.763), respectively. This supports the questionnaire's excellent divergent validity across educational groups, but there was no evidence of convergent validity among genders. The collected data showed a questionable Cronbach's alpha of 0.511, confirming somewhat stable reliability and repeatability of the questionnaire. The Intraclass correlation coefficient was 0.438 (95% Confidence Interval 0.201, 0.642) among the participants. A statistically significant high correlation was found between the Bengali IPAQ-SF version and a single-item physical activity scale confirming the concurrent validity (correlation coefficient 0.819, p <0.001).

Conclusion: The findings show that the self-administered IPAQ short form has acceptable reliability and validity indices. Therefore, this tool can be used to identify NCD risk factors such as physical inactivity.

Keywords: Exercise; Psychometrics; Translations; Bangladesh

Self-Reported Non-Communicable Diseases Among The ≥18 Years Old Population in Northern Bangladesh: Preliminary Findings from a Population-Based Non-Communicable Diseases Registry

Abu Abdullah Mohammad Hanif (abu.hanif@bracu.ac.bd)[1], Md. Mokbul Hossain[1], Mehedi Hasan[2], Abhijeet Roy[1], Rina Rani Paul[1], Malabika Sarker[2], Malay Kanti Mridha[1]

[1]*Centre for Non-communicable Diseases and Nutrition (CNCDN), BRAC James P Grant School of Public Health, BRAC University, Dhaka, Bangladesh;* [2]*Centre for Science of Implementation and Scale-up (SISU), BRAC James P Grant School of Public Health, BRAC University, Dhaka, Bangladesh*

Introduction: In Bangladesh, non-communicable diseases (NCD) are responsible for sixty-seven percent of total deaths. A population-based NCD registry can be helpful to monitor the trend of NCDs and inform the national program periodically.

Methods: We initiated a population-based NCD registry in the Parbatipur sub-district of Dinajpur district. Between January to August 2021, the first round of data collection was implemented in the catchment areas of nine community clinics in nine unions and one randomly selected municipality ward. We visited the households, collected age, and sex-specific information, and asked about any known history of major NCDs to all ≥18 years old members. We estimated the age and sex-specific prevalence of the major NCDs in the area. We cleaned and analyzed the data using Stata version 17.0.

Results: We visited 14,765 households, and among them, 13,809 (93.5%) households had at least one person who consented to provide information regarding membership and history of NCDs. The median household size was 4 (interquartile range: 4, 6). Fifty-one percent of the 38,394 participants living in the listed households were male. Eighty-one percent of the household members did not report any NCD. The prevalence of self-reported hypertension, chronic respiratory diseases, diabetes, heart diseases, kidney disease, and cancers was 10.3%, 4.1%, 3.8%, 2.8%, 1.3%, and 0.1%, respectively. History of heart attack and stroke was reported by 0.8% and 0.9% of the participants, respectively. The prevalence of all self-reported NCDs was higher among older age groups. Moreover, the prevalence of all self-reported NCDs was higher in females than males, except for heart attack and stroke. History of gestational hypertension, gestational diabetes, and any pregnancy-related mental health problem was reported by about 1.7%, 0.7%, and 0.2% of the women.

Conclusion: The prevalence of the major self-reported NCDs in rural northern areas is much lower than the findings of recently conducted national surveys, and therefore a lot of NCDs are undetected. The ministry of health and family welfare (MOHFW) should initiate population-based screening to ensure early detection and management of major NCDs in Bangladesh. The MoHFW should also provide continuous support to the population-based NCD registry initiatives.

Keywords: Noncommunicable Diseases; Cause of Death; Registries; Adolescent; Bangladesh

Mental Health and Dietary Practice Among Women with Breast Cancer in A Tertiary Hospital of Bangladesh

Farzana Tamanna Ummey Shaon (ftu.shaon@gmail.com)[1], Kazi Faria Islam[2], Md. Badrul Hossain Parvez[3]

[1]Laboratory Sciences and Services Division, International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR, B); [2]Montana State University, Montana, USA; [3]Communicable Disease (Malaria), BRAC

Introduction: The incidence of breast cancer is increasing rapidly among women in developing countries. The mental health and dietary practices of women suffering from breast cancer are important for the well-being of them. We aimed to estimate the prevalence and associated factors of anxiety and depression, and dietary practice among women with breast cancer in a tertiary hospital in Dhaka, Bangladesh.

Methods: This cross-sectional study was conducted between November and December, 2019 among women with breast cancer at the Day Care Center of National Institute of Cancer Research Hospital. The women above 18 years and willingly agree to participate were recruited in the study. Hospital Anxiety and Depression Scales (HADS) and Minimum Dietary Diversity- Women (MDD-W) tools were used for data collection. The other collected data were related to socio- economic, socio-demographic variables and cancer status. Descriptive analysis and logistic regression were used for the statistical test analysis.

Results: Out of 359 women with breast cancers, the prevalence of anxiety was 84% and depression was 85%. Around 36% of participants consumed an inadequate diverse diet in the 24 hours preceding data collection. It was found that the participants with secondary or higher education were 58% less likely to have anxiety and 53% less likely to experience depression compared with participants with no education. For dietary practice, the participants consumed 98% carbohydrate, 66% pulses, 12% nuts and seeds, 38% dairy, 85% meat, poultry and fish, 49% eggs, 57% dark green leafy vegetables, 52% other vitamin A-rich fruits and vegetables, 47% other fruits and 39% other vegetables.

Conclusion: Prevalence of anxiety, depression and inadequate dietary diversity are high among women with breast cancer. Health professionals should provide advice on diet, mental health and quality of life to ensure better clinical outcomes among the women with breast cancer.

Keywords: Breast Neoplasms; Tertiary Care Centers; Mental Health; Bangladesh

Prevalence of Risk Factors of Non-Communicable Diseases Among Bangladeshi Males and Females Aged 20-59 Years: Evidence from A Nationwide Survey in Bangladesh

Md. Mokbul Hossain (mokbul.hossain@bracu.ac.bd)[1], Abhijeet Roy[1], Abu Abdullah Mohammad Hanif[1], Showkat Ali Khan[1], Abu Ahmed Shamim[1], Mehedi Hasan[1], Moyazzam Hossaine[1], Mohammad Aman Ullah[2], Samir Kanti Sarker[2] SM Mustafizur Rahman[2], Dipak Kumar Mitra[3], Fahmida Akter[1], Rina Rani Paul[1], Malay Kanti Mridha[1]

[1]Centre for Non-communicable Diseases and Nutrition (CNCDN), BRAC James P Grant School of Public Health, BRAC University, Dhaka, Bangladesh;[2]National Nutrition Services (NNS), Directorate General of Health Services; [3]North-South University

Introduction: Non-communicable diseases (NCDs) are emerging as a health priority in Bangladesh. The primary prevention of NCDs is associated with the prevention of their risk factors. We aimed to identify the prevalence and clustering of the major NCD risk factors among Bangladeshi people aged 20-59 years using the data from a nationally representative survey.

Methods: In this cross-sectional study we collected data from 82 randomly selected clusters (57 rural, 15 non-slum urbans, and 10 slums) from all administrative divisions of Bangladesh. Weighted prevalence of risk factors was estimated. Multivariable logistic regression analysis was done to identify the factors associated with having multiple risk factors. We analyzed data from 9822 participants.

Result: The prevalence of tobacco uses in any form, insufficient physical activity, inadequate fruits, and vegetable consumption, overweight and obesity, and central obesity was about 38%, 14%, 87%, 42% and 36%, respectively. Besides, 22%, and 5% of the participants reported to have self-reported hypertension and diabetes, respectively. Almost 20% of the men and 28% of the women had at least three risk factors. With a cutoff of ≥3 risk factors, clustering of risk factors was associated with age (men: 50-59 years AOR:3.62, 95%CI: 2.90-4.52 and women: 50-59 years AOR: 3.91, 95%CI: 3.13-4.88), place of residence (men: non-slum urban: AOR: 2.57, 95%CI: 2.14-3.09, slum: AOR: 1.80, 95%CI: 1.48-2.17 and women: non-slum urban: AOR: 2.53, 95%CI: 2.10-3.06, slum: AOR: 1.89, 95%CI: 1.56-2.29), education (men: complete secondary or above: AOR: 2.57, 95%CI: 2.11-3.14 and women: complete secondary or above: AOR:1,54, 95%CI: 1.23-1.92), and wealth status (men: richest: 2.02, 95%CI: 1.64-2.49 and women: richest: AOR: 1.72, 95%CI: 1.39-2.12).

Conclusion: The prevalence of the major NCD risk factors is high among Bangladeshi people aged 20-59 years. A large proportion of people also had multiple risk factors. Population-based programs targeting specific groups with multi-sectoral approaches need to be implemented urgently.

Keywords: Noncommunicable Diseases; Risk factors; Hypertension; Prevalence; Bangladesh

---

ABS-042

A Study of- Breast Cancer Related Knowledge, Attitude and Practice of Breast Self-Examination Among Female Respondents Attending in A Breast Cancer Awareness Program in A Private Hospital at Dhaka City

Shaikh Kaniz Sayeda[1] (dr.kaniz.sayeda@gmail.com)

[1]Daffodil International University, Dhaka

Introduction: Breast cancer in women is a major health burden both in developed and developing countries. The World Health Organization (WHO) Reported that nearly 1.15 million new breast cancer cases are being diagnosed every year and nearly half a million deaths are occurring annually due to this lethal disease (World Health Organization, (2008). But still breast cancer is not on the top of the priority list for the policy makers, donors and health professionals. Despite huge efforts to increase the level of breast cancer awareness, breast self-examination (BSE) is still poorly practiced across Bangladesh. The Objective of the study was conducted to find out about breast cancer related knowledge, attitude and practice of breast self-examination (BSE) among

female respondents attending in a breast cancer awareness program in a private hospital at Dhaka city.

Methods: This cross-sectional study was conducted in a private hospital at Dhaka city. Data were collected from 113 female respondents who attended an awareness program by a semi-structured questionnaire. Data entry and analysis was done in SPSS version 16.5 and Excel for windows.

Results: Among the 113 respondents 74.3% of the respondents were in the age group of 31 to 60 years. It was revealed that 28.3% of respondents completed an honors degree. 93.8% of women were married. Among the respondents 85.8% had children. 89.4% of women heard about breast cancer but only 64.6% of respondents knew that early detection of breast cancer can help to completely cure the disease. 46.9% respondents knew that the early stage of breast cancer can be detected by breast self-examination (BSE). But very few 28.3% respondents knew how to perform Breast self-examination (BSE). Among them only 25.7% respondents knew the exact time of breast self-examination (BSE). In ultrasonography report ,51.3% respondents had some abnormal findings of their breast such as- fibroadenoma, prominent duct, enlarged lymph node and fibrocystic changes.

Conclusion: Overall, to control the morbidity and mortality rate of breast cancer we should increase the level of knowledge and we should take some necessary steps to spread the knowledge and awareness about breast cancer.

Keywords: Breast Neoplasm; Breast Self-Examination; Health Knowledge, Attitudes, Practice; Cross-Sectional Studies; Bangladesh

---

Anxiety and Depression in Axial Spondyloarthritis Patients: A Pilot Study from Bangladesh

Tania Kabir (dr.tania.kabir@gmail.com)[1], Md. Nazrul Islam[1], Mohammad Shamsul Ahsan[2]

[1]Department of Rheumatology, Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka, Bangladesh; [2]Department of Psychiatry, Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka, Bangladesh

Introduction: Anxiety and depression are common in Spondyloarthritis (SpA) patients. The objective of this study was to determine the association of anxiety and depression with disease activity and quality of life in axial SpA patients.

Methods: A total of 76 adult patients of both genders were enrolled from the department of rheumatology, BSMMU following the ASAS classification criteria. The Bangla Depression, Anxiety and Stress Scale (DASS 21 BV) was used for the screening of anxiety and depression. The score of 8 or more in the anxiety questions of DASS 21 scale (DASS-A) was defined as anxiety and the score of 10 or more in the depression questions (DASS-D) was defined as depression. Disease activity and quality of life was assessed by Bangla versions of BASDAI, ASDAS ESR/CRP and ASQoL, respectively.

Results: The mean age of the patients was 31.87 ± 9.27 years, 54 males and 22 females. DASS-A score was significantly correlated with age, BASDAI and ASQoL. Age, age at onset, BASDAI, ASDAS-ESR, ASDAS-CRP and ASQoL were correlated with the DASS-D score. ASQoL was significantly associated with both anxiety (OR 1.20, 95% CI:1.04-1.39, p=0.02) and depression (OR 1.37, 95% CI: 1.15-1.62, p <0.001). The prevalence of anxiety and depression was 43.4%

and 61.8%, respectively. Among them 35.5% had moderate to extremely severe anxiety and 47.4% had moderate to extremely severe depression.

Conclusion: Anxiety and depression are associated with disease activity (BASDAI, ASDAS CRP) and quality of life (ASQoL) in axial SpA patients.

Keywords: Depression; Pilot Projects; Spondylarthritis; Spondylitis, Ankylosing: Bangladesh

---

ABS-046

Status of fruits and vegetable consumption and factors associated with inadequate fruits and vegetable consumption among 20-59 years old females in Bangladesh

Priscilla Khyang[1] (priscilla.khyang@bracu.ac.bd), Abu Abdullah Mohammad Hanif[1], Md. Mokbul Hossain[1], Fahmida Akter1, Abhijeet Roy[1], Abu Ahmed Shamim[1], Mehedi Hasan[2], Md Showkat Ali Khan[1], Moyazzam Hossaine[2], Mohammad Aman Ullah[2], Samir Kanti Sarker[2], S M Mustafizur Rahman[2], Md Mofijul Islam Bulbul2, Dipak Kumar Mitra[3], Malay Kanti Mridha[1]

[1]Centre for Noncommunicable Diseases and Nutrition, BRAC James P Grant School of Public Health, BRAC University, Dhaka, Bangladesh; [2]National Nutrition Services (NNS), Institute of Public Health Nutrition (IPHN), Bangladesh; [3]North-South University, Bangladesh

Introduction: Bangladesh is going through an epidemiological transition with a rising trend of non-communicable diseases (NCDs). Inadequate fruits and vegetables (IFAV) consumption is a crucial risk factor for NCDs. In this study, we assessed the status of IFAV consumption and identified factors associated with IFAV among females aged 20-59 in Bangladesh.

Methods: Data were extracted from the Bangladesh Food Security and Nutrition Surveillance Round 2018-19. A total of 5059 women were enrolled from 82 rural, non-slum urban, and slum clusters from 8 administrative divisions of the country using a multistage cluster sampling technique. IFAV was defined as less than 400gm fruits and vegetables (FAV) consumption in a day. Poisson regression was performed to estimate the crude and adjusted prevalence ratios with 95% CI to identify factors associated with IFAV.

Results: The weighted prevalence of IFAV consumption was 88.5%**.** The participants who were living in rural areas {Adjusted prevalence ratio (APR):0.96, 95% CI: 0.92, 0.99}; currently married (APR:0.96, 95% CI: 0.93, 0.99), Muslim (APR: 1.07, 95% CI: 1.04, 1.11), living in Chittagong (APR:0.96, 95% CI: 0.92, 0.99), Dhaka (APR: 0.94, 95% CI: 0.91, 0.97), Mymensingh (APR: 0.73, 95% CI: 0.69, 0.77, Khulna (APR:0.88, 95% CI: 0.85, 0.92) divisions; overweight (APR: 0.96, 95% CI: 0.93, 0.99); obese (APR: 0.96, 95% CI: 0.92, 0.99); and spending >7hours sedentary time (APR: 1.03, 95% CI: 1.00,1.05) had significantly higher prevalence of IFAV consumption.

Conclusion: Therefore, the prevalence of IFAV consumption among 20-59 years old females was very high in Bangladesh. Public health interventions should be implemented to ensure adequate consumption of FAV in this age group.

Keywords: Vegetables; Fruits; Feeding Behavior; Bangladesh

Utility of Tuberculin Skin Test and QuantiFERON TB Gold Plus in the Screening of Latent Tuberculosis Infection in Refractory Spondyloarthritis Patients

Soleman Rajan (rajan34ssmc@gmail.com)[1], Md. Nazrul Islam[2], Humayun Sattar[2], Abul Khair Ahmedullah[2]

[1]Sir Salimullah Medical College and Mitford Hospital, Dhaka, Bangladesh; [2]Department of Rheumatology, Bangabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh

Introduction: Reactivation of latent tuberculosis infection is a major concern prior to initiation of biologics or targeted synthetic DMARD (tsDMARDs) in refractory Spondyloarthritis (SpA) patients. This study was carried out to observe the utility of TST and QFT-Plus among BCG vaccinated refractory spondyloarthritis patients in Bangladesh.

Method: A total of 51consecutive refractory SpA patients of both genders were enrolled from July 2019 to July 2020 in the department of Rheumatology, BSMMU. After proper clinical and laboratory evaluation, chest x-ray, QFT-Plus and TST were done in all patients. For COVID-19 pandemic, estimated samples could not be enrolled. Therefore, a model-based simulation test was used to convert the 51-primary data to 97 simulated data using "R" software with "arm' and "Himise" package to observe the changing trends of results. Agreement between TST and QFT-Plus was evaluated using kappa statistics. To identify variables associated with TST or QFT-Plus results bivariate analysis was done.

Results: The mean age was 35.16±11.24 years, 39 male and 12 females. Among the enrolled subjects TST was positive in 5 (9.80%) patients and in simulation model positivity became 12 (12.37%). Out of 51 subjects,8 (15.58%) was QFT-Plus positive and in simulation model positivity turned out 16 (16.49%). Agreement between TST and QFT-Plus was poor; kappa value was 0.39 in primary data and 0.33 in simulated data. In simulated data female gender was associated with QFT-Plus positive results [Odd Ratio (OR) = 4.1; 95% Confidence Interval (CI) = 1.38-12.76; p = 0.01].

Conclusion: QFT-Plus should be preferred than the TST in screening of latent tuberculosis infection in SpA patients.

Keywords: Tuberculin Test; Latent Tuberculosis; Spondylarthritis; Interferon-gamma Release Tests

Status and Correlates of Depression and Anxiety Among Slum-Dwelling Mothers of Children Aged <2 Years in Bangladesh: A Cross-Sectional Study

Abhijeet Roy (abhijeet.roy@bracu.ac.bd)[1], Abu Abdullah Mohammad Hanif[1], Fahmida Akter[1], Md. Mokbul Hossain[1], Mehedi Hasan[1], Bachera Aktar [2], Abdul Awal [2], Shafiqur Rahman[3], Malay Kanti Mridha[1]

[1]Centre for Non-communicable Diseases and Nutrition, BRAC James P Grant School of Public Health, BRAC University, Dhaka, Bangladesh; [2]Center of Excellence for Gender, Sexual and Reproductive Health and Rights, BRAC James P Grant School of Public Health, BRAC University, Dhaka, Bangladesh; [3]Institute of Statistical Research and Training, Dhaka University, Dhaka, Bangladesh

Introduction: Depression and anxiety are leading mental health-related disorders in Bangladesh. Mothers of young children are particularly prone to developing depression and anxiety. Poor

socioeconomic status and inadequate infrastructure of the slums in Bangladesh are making the slum dwellers more vulnerable to depression and anxiety. In this study, we reported the prevalence and factors of depression and anxiety among slum-dwelling mothers of children aged <2 years.

Methods: This cross-sectional survey was conducted among 681 women with a child aged <2 years in selected slums of Dhaka and Nilphamari districts. Data were collected using a pre-tested structured questionnaire. Depression and anxiety were measured using the Patient Health Questionnaire (PHQ-9) and the Generalized Anxiety Disorder questionnaire (GAD-7), respectively. Poisson regression was used to identify the associated factors.

Results: The overall prevalence of depression and anxiety among the mother of children <2 years was 46.1% (95% CI: 42.3%, 49.9%), and 44.5% (95% CI: 40.7%, 48.3%), respectively. Further, 33.2% (95% CI: 29.7%, 36.9%) of the participants had both depression and anxiety, and 57.4% (95% CI: 53.6%, 61.2%) of them had either depression or anxiety or both. After adjusting the covariates, factors associated with depression were age 30+ years (APR: 1.60; 95% CI:1.09, 2.34), severe food insecurity (APR: 1.42; 95% CI: 1.16, 1.73), mothers whose index child was not on exclusively breastfed (APR: 1.42; 95% CI: 1.20, 1.69). Likewise, mothers aged 30+ years (APR:1.80; 95% CI:1.20, 2.71), living in severe food-insecure households (APR: 1.71; 95% CI: 1.38, 2.11), mothers who experienced complications during their last pregnancy (APR: 1.21; 95% CI: 1.03, 1.43), and mothers whose index child was not exclusively breastfed (APR: 1.33; 95% CI: 1.11, 1.58) had a higher prevalence of anxiety.

Conclusion: Therefore, the high prevalence of depression and anxiety among slum-dwelling mothers of children aged <2 years in Bangladesh calls for further exploration and appropriate interventions.

Keywords: Cross-Sectional Studies; Depression; Anxiety; Bangladesh

---

ABS-051

Status of Consumption of Unhealthy Foods and Factors Associated with Unhealthy Food Consumption Among 20-59 Years Old Women in Bangladesh

Shahnaz Sharmin (shahnazselina.1234@gmail.com), Abu Abdullah Mohammad Hanif[1], Fahmida Akter[1], Md. Mokbul Hossain[1], Abhijeet Roy[1], Abu Ahmed Shamim[1], Mehedi Hasan[2], Md Showkat Ali Khan[1], Moyazzam Hossaine[2], Mohammad Aman Ullah[2], Samir Kanti Sarker[2], S M Mustafizur Rahman[2], Md Mofijul Islam Bulbul[2], Dipak Kumar Mitra[3], Malay Kanti Mridha[1]

[1]Centre for Non-communicable Diseases and Nutrition, BRAC James P Grant School of Public Health, BRAC University, Dhaka, Bangladesh; [2]National Nutrition Services (NNS), Institute of Public Health Nutrition (IPHN), Bangladesh; [3]North-South University, Bangladesh

Introduction: Consumption of unhealthy food is a major public health concern, because of its adverse impact on health. We aimed to assess unhealthy foods (savory and fried snacks, sweets and SSBs) consumption and identify factors associated with consumption of these foods among 20-59 years old women.

Methods: We utilized data from the Food Security and Nutrition Surveillance Project (FSNSP) of Bangladesh 2018-2019. The study participants were selected from 82 clusters through multistage cluster sampling. Structured questionnaire was used to assess unhealthy food consumption and

other explanatory variables. Descriptive analysis and Poisson regression with robust variance were carried out.

Results: The weighted prevalence of weekly savory and fried snacks, sweets and SSBs consumption were 29.6%, 58.7% and 35.2%, respectively. Factors associated with higher prevalence of savory and fried snacks, sweets consumption were residence in administrative divisions, e.g., Sylhet (APR: 1.55, 95% CI: 1.43, 1.68); residence in urban area (APR: 1.08, 95% CI: 1.03, 1.13); secondary (APR: 1.18, 95% CI: 1.12, 1.25) and higher secondary and above education (APR: 1.30, 95% CI: 1.22, 1.38); belonging to a particular wealth quintile, e.g., highest wealth quintile (APR: 1.18, 95% CI: 1.11, 1.26) and being overweight (APR: 1.08, 95% CI: 1.01, 1.15). Furthermore, factors associated with higher prevalence of SSBs consumption were residence in e.g., - Sylhet (APR: 4.53, 95% CI: 3.94, 5.21); residence in urban area (APR: 1.75, 95% CI: 1.62, 1.89); not married (APR: 1.12, 95% CI: 1.03, 1.23); having particular level of education, e.g., higher secondary and above education category (APR: 1.41, 95% CI: 1.28, 1.55); belonging to highest wealth quintile (APR: 1.18, 95% CI: 1.07, 1.30); inadequate fruits and vegetables consumption (APR: 1.11, 95% CI: 1.02, 1.62); >7 hours of sedentary time (APR: 1.10, 95% CI: 1.02, 1.18) and being overweight (APR: 1.16, 95% CI: 1.05, 1.28). We found a high prevalence of savory and fried snacks, sweets and SSBs consumption among Bangladeshi women, and the consumption is associated with geographical, socio-demographic and behavioral factors.

Conclusion: The government of Bangladesh can utilize these findings to design and implement interventions to decrease unhealthy foods consumption and encourage healthy foods consumption.

Keywords: Young adult; Middle Aged; Diet, Healthy; Feeding Behavior; Bangladesh

---

Detection of Thalassemia Carrier Prevalence Through Awareness and Free Screening Program

Kasrina Azad (kasrina.azad@ideshi.org)[1], Mohabbat Hossain[1], Farjana Akter Noor[1,2], Rumana Mahatarin[1], Firdausi Qadri[3]

[1]institute for developing Science and Health initiatives (ideSHi), Matikata, ECB Chattar, Kalshi Road, Dhaka-1206; [2]Tejgaon College, Dhak, Bangladesh; [3]International Centre for Diarrhoeal Disease Research, Bangladesh (icddr,b)

Introduction: Thalassemia is a common genetic blood disorder characterized by decreased hemoglobin production. According to the WHO, approximately 1.5% of the global population are carriers of beta-thalassemia, and 68,000 children are born each year with various thalassemia syndromes while in Bangladesh, it is roughly 33/10,000 live birth being a mutational hotspot (beta-thalassemia gene) with about 12% carrier rate. This study aimed to detect more precise and up-to-date data on thalassemia carrier rate in Bangladesh followed by pre-marital counseling to reduce the disease burden through thalassemia awareness and detection programs.

Methods: The plan is to target young adults from 12 institutes in 2022. Between 2018-2019 we conducted a nationwide carrier detection program where 1877 individuals aged 18-35 years were enrolled. After the pandemic, we initiated the program from October 2021 and enrolled 88 medical students aged between 18 to 25years. A short questionnaire with family history was filled up by participants. Venous blood was collected and subjected to CBC analysis and Hb-electrophoresis for

each participant. Results were disseminated through email. Participants with Hb E/ beta traits were informed and pre-marital genetic counseling was done over the phone.

Result: The previous study found 11.89% (95% CI, 10.43–13.3) thalassemia carriers where 8.68% had HbE trait and 2.24% beta-thalassemia trait. From our ongoing program, out of 88 participants, we found 10.23% thalassemia carriers (7.9% Hb E carrier and 2.3% beta Carrier). Among the thalassaemic carriers, 44.5% were moderately anemic and 22.2% were mildly anemic.

Keywords: Prevalence; beta-Thalassemia; Genetic Carrier Screening

---

ABS-054

Detection of Inborn Errors of Metabolism using Liquid Chromatography Tandem Mass Spectrometry (LC-MS/MS) among high-risk neonates and children in Bangladesh

Mohabbat Hossain (mohabbat@ideshi.org)[1], Suprovath Kumar Sarker[1,2], Umme Kulsum[1], Abu Bakar Siddik[1], Zannat Kawser[1], Nishat Sultana[1], Bithi Debnath[3], Mohammod Shahidullah[4], Narayan Saha[3], Sharif Akhteruzzaman[5] and Firdausi Qadri [1,6]

[1]institute for developing Science & Health initiatives (ideSHi), Dhaka, Bangladesh; [2]Umea University, Sweden; [3]National Institute of Neurosciences & Hospital, Dhaka, Bangladesh; [4]Bangabandhu Sheikh Mujib Medical University, Shahbag, Dhaka, Bangladesh, [5]Department of Genetic Engineering & Biotechnology, University of Dhaka, Dhaka, Bangladesh; 6International Centre for Diarrhoeal Disease Research, Mohakhali, Dhaka, Bangladesh

Introduction: Inborn Errors of Metabolism (IEMs) are a group of inherited metabolic disorders. These metabolic disorders are caused by mutations in the genes that encode enzymes of the metabolic pathways. It is assumed that 6-8% of the world population can be affected by IEMs where the prevalence of IEM among suspected patients is 2.6% in Bangladesh. Liquid chromatography tandem mass spectrometry (LC-MS/MS) is an accurate and reliable approach for the diagnosis of IEMs. So, we aimed to determine the prevalence of IEMs among Bangladeshi children using LS-MS/MS along with the common types of IEM, their age-specific prevalence, clinical profiles and treatment pattern.

Method: A total of 570 healthy participants and 273 suspected patients with IEMs were enrolled in the study. Quantitation of amino acids and acylcarnitines was performed on an automated LC-MS/MS system using dried blood spot (DBS) cards. Data were analysed using established methods.

Results: Among 273 clinically suspected patients with IEMs, 7 patients came out as screening positive for 6 different IEMs by LC-MS/MS analysis where 3 cases with phenylketonuria, 1 with citrullinemia type II, 1 with methylmalonic acidemia, 1 with isovaleric acidemia and 1 with carnitine uptake defect.

Conclusion: LC-MS/MS technique makes it possible to screen for a wide range of previously unscreened inborn errors of metabolism (IEMs) using a single test. LC-MS/MS technique may play a vital role in screening and diagnosis of IEMs in newborns and this may be helpful in facilitating timely therapy of treatable IEMs. Unfortunately, this high-throughput technique is very rare in our country. As a result, biological specimens from suspected individuals are being sent to other countries. We hope our study will assist other researchers or government authorities in installing and establishing this new technology for screening of IEMs through newborn screening programs.

Evaluation of Peripheral Neuropathy and Its Related Risk Factors in Type-2 Diabetic Patients

Md. Azad Hossain1, Mukul Kumar Sarkar[2], Mohammad Imtiaj Mahbub[3], S. M. Shahinul Islam (shahinul68@gmail.com)[1]

[1]*Institute of Biological Sciences, University of Rajshahi, Rajshahi, Bangladesh;* [2]*Department of Neurology, Rajshahi Medical College, Rajshahi, Bangladesh;* [3]*Department of Endocrinology, Sheikh Hashina National Institute of Burn and Plastic Surgery, Dhaka, Bangladesh*

Introduction: Diabetic peripheral neuropathy (DPN) patients frequently feel persistent pain, which is described as painful diabetic peripheral neuropathy (PDPN). PDPN affects patients' sleep, emotions, mental state and daily activities, resulting in a low quality of life and a significant financial burden. The main objective of this study was to monitor the prevalence, pattern of pain and related risk factors of diabetic peripheral neuropathy.

Method: In this study, 150 patients were considered from OPD (outpatient department) of Rajshahi Diabetic Association General Hospital, Bangladesh who were having type-2 diabetic and screened them on the basis of PDPN with DPN. The HbA1c level was measured in every three months and DPN and PDPN were confirmed by neuropathy symptom score and neuropathy disability score.

Results: DPN was detected in 24%, while PDPN was found at 15% among total patients. The prevalence of PDPN was 63.88% and non-painful DPN was 36.11% of total DPN. Out of total PDPN, the prevalence of symmetrical involvement of pain was 65% and asymmetrical 35%. Sensory symptom pain 26%, motor symptom 13% and mixed (sensorimotor) 61% of total PDPN. Lower limb involvement 48%, upper limb 13% and both limb 39% of total PDPN. Advanced age, longer duration of diabetes and higher levels of HbA1c showed significant association ($p<0.05$) in DPN patients than non-DPN patients.

Conclusion: Overall, the findings imply that advanced age, prolong duration of diabetes and raised HbA1c levels are closely linked to DPN as well as PDPN in type-2 diabetic patients and that HbA1c might be used as a predictive marker for DPN and also increasing neuropathy is associated with an increasing risk of developing PDPN. Data suggest that strict glycemic control, as well as HbA1c is very important for type-2 diabetes patients to prevent and avoiding the severity from DPN.

Keywords: Risk Factors; Diabetes Mellitus, Type 2; Diabetic Neuropathies; Glycated Hemoglobin A

Prevalence of Major Subtypes and Clinical Features Involving Cardiac Murmur of Congenital Heart Disease in Rajshahi Medical College Hospital, Bangladesh

Md. Nahid Islam Chowdhury[1], Md. Anayet Ullah[2], Md. Belal Hossain[3], Mst. Shabnaz Aktar[4], Md. Saif Zaman[1], S. M. Shahinul Islam (shahinul68@gmail.com)[1]

[1]Institute of Biological Sciences, University of Rajshahi, Rajshahi-6205, Bangladesh; 3Dept. of Pediatrics, Rajshahi Medical College, Rajshahi, Bangladesh; [2]Dept. of Community Medicine, Barind Medical College, Rajshahi, Bangladesh; [4]Dept. of Community Medicine, Sir Salimullah Medical College, Dhaka

Introduction: Congenital heart disease (CHD) is a major health concern for pediatricians due to its significant health hazards and high mortality rate and in major cases it is asymptomatic in early ages. Physicians are concerned with detecting earlier and subsequent treatment of children with CHD to reduce the health hazards and mortality associated with CHD. The main objective of this study was to find out the ways to prevalence of major subtypes of cardiac murmur of CHD in children.

Method: It's a cross-sectional descriptive study and as respondents children age from 1 days to 10 years of both sexes were admitted in Rajshahi Medical College Hospital (January 2019 – June 2021). Here clinical diagnosis was confirmed by echocardiography.

Results: A total of 3978 children aged ≤10 years were examined and among them clinically detectable cardiac murmur with CHD was found in 54 respondents (1.36%) with 1.25:1.0 male female ratio. Data shows that the pan systolic murmur was the most prevalent subtypes followed by continuous murmur (22.20%), ejection systolic murmur (18.50%) and mid diastolic murmur (14.80%). Ventricular septal defect (40.70%) was the most prevalent CHD followed by patent ductus arteriosus (22.20%), atrial septal defect (20.40%), tetralogy of fallot (13%) and coarctation of aorta (3.70%). Rapid breathing was the most common clinical presentation (63%) followed by cough (29.60%), bluish coloration (22.20%), breathlessness (20.40%), feeding difficulties (14.80%), increase temperature (13%), poor growth (7.40%) and excessive sweating (5.60%). And chest retraction was the most common clinical findings (61.10%) followed by cyanosis (14.80%), edema (3.70%) and abnormal pulsation (3.70%).

Conclusion: Detecting cardiac murmur was found as an easy and reliable method under this study. Hence, careful and thorough clinical examination including cardiac murmur is very important to ensure management of CHD in children in Bangladesh.

Keywords: Prevalence; Heart Murmurs; Heart Defects, Congenital; Hospitals; Bangladesh

Analysis of Biomarker Signature and Molecular Pathway in Small Cell Lung Cancer: A Systematic and Bioinformatics Approach

Amina Rownaq[1], S. M. Shahinul Islam[1], Md. Nurul Haque Molla[1]

[1]University of Rajshahi, Bangladesh

Introduction: Small cell lung cancer (SCLC) is one of the highly malignant tumors and a serious threat to human health. The aim of the present study was to explore the underlying molecular mechanisms of SCLC.

Method: Microarray datasets GSE 99316 and GSE 106091 were downloaded from gene expression omnibus (NCBI-GEO) database and the differentially expressed genes (DEGs) between normal lung and SCLC samples were screened using the GEO2R tool. The parametric method LIMMA was used to identify DEGs with statistical significance of adjusted $p<0.05$. Gene expression profiles from small cell lung cancer were analyzed with genome-scale biomolecular networks (i.e., protein-protein interaction, DAVID, Kaplan-Meier Plot).

Results: From these two datasets 61 differential expressed genes were common, whereas 5 genes were up regulated and 56 genes were down regulated.Ten hub proteins, four transcription factors (TFs) and three miRNA came into prominence as potential drug targets. The differential expression profiles of these reporter biomolecules were cross-validated by independent RNA-Seq. Risk discrimination performance of the hub proteins- BARD1, CDK1, ELF3, TMPO, TRIM2, CBFA2T2, UCB, TPD52, ATG10 and CALD2 were also evaluated. Four TFs such as TP53, MYC, NFKB1 and E2F1 and three miRNAs such as hsa-mir-107, hsa-mir-16-5p and hsa-mir-34a-5p were found as key reporter biomolecules.

Conclusion: The findings of the study sheds light on early the diagnosis of SCLC and understanding the molecular mechanisms of SCLC, and also provides molecular targets and diagnostic biomarkers for the treatment of SCLC.

Keywords: Computational Biology; Small Cell Lung Carcinoma; Biomarkers; Adenocarcinoma of Lung; Lung Neoplasms

---

ABS-058

Oral Health and Knowledge of Oral Care Among Cancer Patients During Radio or Chemotherapy

M M Alamgir Siddique Abbasi[1], Mir Nowazesh Ali[2], S. M. Shahinul Islam (shahinul68@gmail.com)[1]

[1]*Institute of Biological Sciences, University of Rajshahi, Rajshahi-6205, Bangladesh;* [2]*Department of Oral and Maxillofacial Surgery, Bangabandhu Sheikh Mujib Medical University (BSMMU), Shahbagh, Dhaka*

Introduction: Cancer is a great health problem and very alarming disease that affects many people each year in developing countries and other countries in the world. In this regard oral health cancer hampered our normal health and quality of life. The main objective of these studies was to assess the oral health status of cancer patients before, during and after taking radiotherapy and/or chemotherapy.

Method: A descriptive cross-sectional study was conducted among cancer patients who were administered radiotherapy and/or chemotherapy in National Institute of Cancer Research and Hospital, Mohakhali, Dhaka during the study period of 2018-2020. Sixty eight cancer patients were selected and interviewed through a semi-structured questionnaire. Oral health status was recorded and data obtained on socio-economic status, patients' past habit, past illness, knowledge and quality of life.

Results: Data revealed that 30.90% and 22.10% of the patients had pain before and during therapy respectively, while no patient complained of pain in the oral cavity after therapy. About 4.4% patients had preoperative tooth sensitivity whereas 22.10% complained sensitivity during and after treatment. Among them 75.00%, 42.60% and 20.60% patients presented pre, on and post-operative intraoral swelling respectively. Among 68 patients 4.40% had an altered taste before treatment but during. After therapy 63.20% cases were followed up and 86.80% of them complained of altered taste during and after therapy. Before, during and after radio or chemotherapy 22.10%, 20.60% and 44.10% of patients were being diagnosed with caries while 72.10%, 63.20% and 63.20% were found with gingivitis respectively.

Conclusion: The results indicate that patients receiving radiotherapy experienced increasing oral symptoms, which remained to a large extent one month after treatment. The oral symptoms were significantly related to patients' health-related quality of life, particularly among those receiving radiotherapy.

Keywords: Oral Health; Neoplasms; Antineoplastic Combined Chemotherapy Protocols

---

ABS-059

Evaluation of Serum Prostate Specific Antigen Levels to Differentiate Prostate Cancer from Benign Prostatic Hyperplasia

Md. Azizul Islam[1,2], Md. Jawadul Haque [2], S. M. Shahinul Islam (shahinul68@gmail.com)[1]

[1]Institute of Biological Science, University of Rajshahi, Bangladesh; [2]Department of Surgery, Rajshahi Medical College, Rajshahi

Introduction: The prostate cancer (Ca-P) is one of the most commonly diagnosed cancers in men and is now the third commonest cause of cancer death in western and other countries of the world. The aim of the study was to evaluate the use of serum prostate specific antigen level in differentiating prostate cancer from benign prostatic hyperplasia.

Method: A cross sectional observational study was conducted at the Dept. of Urology, Rajshahi Medical College Hospital, Rajshahi, Bangladesh and also included different private clinics in Rajshahi City during the working period of July 2017 to June 2018. Study population included the male patients above 50 years of age, who attended in the selected clinics with complaining irritative or obstructive lower urinary tract symptoms (LUTS) and suspected as clinically prostate cancer or benign prostatic hyperplasia (BPH). Data was analyzed by the SPSS-24 program.

Results: Prostatic carcinoma was observed to be significantly higher from 80 years onwards, while BPH was common between 60 - 80 years ($p = 0.01$). Accuracy of free/total ratio of serum PSA as a diagnostic test in differentiating prostatic carcinoma from BPH in patients with total PSA level between 4-10 ng/ml was recorded. The percentage of false positives was significantly higher when total PSA was used to diagnose the disease compared to when free to total PSA was used as a diagnostic tool ($p<0.01$). The overall accuracy of total PSA was also significantly lower (61.45%) than that of free/total PSA (91.67%) ($p<0.012$).

Conclusion: Free and total prostate specific antigen (PSA) is increased significantly in carcinoma prostate than benign prostatic hyperplasia but free/total ratio of serum prostate-specific antigen level significantly decreases in prostatic carcinoma than benign prostatic hyperplasia.

Keywords: Prostate-Specific Antigen; Prostatic Hyperplasia; Prostatic Neoplasms; Prostate

Anticancer Potential of Miceliachampaca Linn. Bark Against Ehrlich Ascites Carcinoma (EAC) Cells in Swiss Albino Mice

Ruksana Yesmin1, Kazi Soha,[1] Md. Arifur Rahman,[1] Plabon Kumar Das[1], Hazrat Belal[1], Suraiya Aktar[1], Mst. Ayesha Siddika[1], SahariaYeasmin Asha[1], Farjana Habib[2], Md. Abdur Rakib[1], Farhadul Islam,[1] Jahan Ara Khanam1, 2

[1]Department of Biochemistry and Molecular Biology, University of Rajshahi, Rajshahi-6250, Bangladesh; [2]Institute of Biological Science, University of Rajshahi, Rajshahi-6205, Bangladesh.

Introduction: Cancer is a group of diseases characterized by uncontrolled proliferation of cells and second cause of mortality worldwide. Adverse side effects of currently available therapies against cancer, leads scientists to find effective compounds from natural sources. Therefore, in the present study, stem-bark of *Mycelia champaca* is subjected to evaluate its antiproliferative effect against Ehrlich ascites carcinoma (EAC) cells.

Methods: *In vivo* anticancer activity was evaluated against EAC cells bearing Swiss albino mice by monitoring parameters such as tumor cell proliferation, tumor weight measurement, and survival time etc. The mechanism of EAC killing was examined by observation of cell morphology and analysis the expression of certain cancer related genes. *In vitro* antioxidant potentiality was determined in terms of several common antioxidant assays. In addition, total phenolic and flavonoids contents were measured to insure the presence of phytochemicals.

Results: *M. champaca* bark extract showed strong antioxidant activities which were found to be strongly correlated (P<0.001) with phenolics and flavonoids contents. Furthermore, it was found that bark extract decreased tumor cell proliferation (77.46%; P<0.01), tumor weight (42.13%; P<0.001) and increased life span of tumor bearing mice (71.97%; P<0.01) at the dose of 250mg/kg (intraperitoneal; i.p.). *M. champaca* bark also altered the depleted hematological parameters such as red blood cell, white blood cell, hemoglobin (Hb%) towards normal in tumor bearing mice. In addition, upregulation of p53, Bax and downregulation Bcl-2 followed by treatment indicated *M. champaca* bark could induce apoptosis of EAC cells.

Conclusions: These results indicated that MEMCB possesses significant cytotoxic activities against EAC cells and has a strong *in vitr*o antioxidant capacity.

Keywords: Plant Bark; Ascites; Animals; Carcinoma, Ehrlich Tumor; Antineoplastic Agents, Phytogenic

Assessment of Lifestyle Practices and Chronic Diseases among Healthcare Professionals at Selected Hospitals in Gazipur and Dhaka, Bangladesh

Belayet Hossen1, Nusrat Hossain Sheba1, Sharmin Hossain1, Md. Anower Hussain2, Arifa Tanha3, Md. Rabiul Islam4

1Department of Health Promotion and Health Education, Bangladesh University of Health Sciences; 2Department of Community Dentistry, Bangladesh University of Health Sciences; 3Department of Community Nutrition, Bangladesh University of Health Sciences; 4Department of Public Health, Independent University, Bangladesh (IUB)

Introduction: Lifestyle habits of healthcare professionals are a paramount importance because these habits influence the healthcare professional's own health and these habits have been shown

to affect patients' care as well. Due to lack of adequate studies in Bangladesh, this study aimed to find pattern of healthy lifestyle practices such as physical activity, healthy diet, smoking habit and chronic diseases of the healthcare professionals of selected hospitals at Gazipur and Dhaka city in Bangladesh.

Method: A cross-sectional study was carried out among 418 Healthcare Professionals in selected hospitals at Gazipur and Dhaka city of Bangladesh with simple random sampling method. Data were collected between May 2019 and August 2019 by using a pretested, semi-structured questionnaire.

Results: The mean age of the respondents was 31±7 years old and majority of the respondents (66.74%) were female. Most of the participants were nurses (66.5%) and others were doctors (19.4%) followed by allied health personnel (13.63%). Only 13.63% participants had any form of chronic disease. The prevalence of smoking was 5.02% and only 12.67% participants were physically active. The overall mean dietary score was 13.03± 2.51. Most of the participants (55.98%) scored >12 in the dietary score. Those who scored <12 (namely, <50%) need to consider changing to a healthier diet habit.

Conclusion: Study findings indicated a reasonably high proportion of healthcare professionals reported not engaging in healthy lifestyle behaviors that impact on chronic diseases, thus, in turn, they may be less likely to encourage such behaviors among their patients.

Keywords: Life Style; Chronic Disease; Delivery of Health Care; Hospitals; Bangladesh

Situation of the Frontline Workers During COVID-19 Pandemic in Bangladesh

Noshin Farzana (noshin.farzana@icddrb.org)[1], Saimul Islam[1], Mir Nabila Ashraf[1], Nantu Chakma[1], Aliya Naheed[1]

[1]Initiative for Non Communicable Diseases, icddr,b

Introduction: As of 31st July 2021, the case fatality rate of COVID-19 infection was reported to be 1.65 % in Bangladesh. We estimated the death rate among the frontline workers due to COVID-19 infection and challenges faced by them in Bangladesh.

Methods: We reviewed information of doctors, police and journalists reported in selected newspapers with a high circulation, as well as the government and professional websites. Online research reports and posts in professional social media were searched. Reports between 8 March 2020 and 31 July 2021 were extrapolated for review following predefined themes and related key terms. Duplicate reports were counted once and updated reports were transferred into an Excel sheet for analyses manually.

Results: Total 230 reports, including 195 from newspapers and 42 from other sources were retrieved. Thirty-nine reports extracted from 32 news articles (82%) and 7 website reports (18%) were analyzed. COVID-19 infection was reported among 23,209 police, 3080 doctors, and 1431 journalists, including 102, 176 and 60 deaths reported respectively. Case fatality rate was 5.71% among the doctors, 4.19% among the journalists and 0.44% among the police workforces. Challenges faced by the frontline workers were reported in 14 news articles (36%). Challenges for doctors included supply, quality and distribution of personal protective equipment (PPE), concealment of symptoms by patients and crowding in hospitals; for the police living in a congested condition in the barrack and for the journalist's shortage of protective gear were

reported. Six news reports recommended distribution of safety instructions and adequate PPE among the frontline workers, and designate hospitals for treating them for improving survival among the frontline workers.

Conclusion: The case fatality rate of COVID-19 infection in Bangladesh is 5 times higher among doctors, 4 times higher among journalists and 3 times lower among police work forces compared to the overall country estimate. Improvement of bio safety measures and dedicated treatment facilities may reduce deaths among the frontline workers during COVID-19 pandemic in Bangladesh.

Keywords: Pandemics; Bangladesh; COVID-19; SARS-CoV-2; Influenza A Virus, H1N1 Subtype; Influenza, Human.

Religious Disparities in Health in Bangladesh: The Case of Hypertension and Diabetes

M. Moinuddin Haider (moin@icddrb.org)[1], Nahid Kamal[2], Mamun Ibn Bashar[1], Romanshi Gupta[2], Md Mahabubur Rahman[1], Nurul Alam[1]

[1]*Health Systems and Population Studies Division, icddr,b, Dhaka, Bangladesh;* [2]*PopDev Consultancy, London, United Kingdom*

Introduction: Religious affiliation, beliefs, and practices shape lifestyle and related disease risks. This study examines Hindu-Muslim differences in the prevalence and management of hypertension and diabetes in Bangladesh.

Method: We analyzed data from nationally representative Bangladesh Demographic and Health Survey (BDHS) 2011 and BDHS 2017-18. The BDHS 2011 collected blood pressure and blood glucose data from adults aged 35 years and above household members, and BDHS 2017-18 collected the data from 18 years and above household members.

Results: Among 18 years and older population, 31 percent of Hindus and 24 percent of Muslims were hypertensive in the BDHS 2017-18 but no difference in diabetes. The difference remains after controlling for age, sex, education, urbanity, geographic region, nutritional status, and household wealth quintiles. The levels of awareness of, medication for, and control were similar among the religious groups for hypertension and a little higher among Hindus than Muslims. We find a parallel increase in hypertension among 35 years and above Hindus and Muslims between BDHS 2011 and BDHS 2017-18.

Conclusion: Religion-based lifestyle, minority status, or higher emigration Hindus (as emigration is a trait of healthy people) may explain the high prevalence of hypertension, particularly among Hindu men in Bangladesh. To understand the Hindu-Muslim disparity in hypertension, more research on diet, lifestyle, and stress – the primary inflictors of the health condition – is needed.

Keywords: Diabetes Mellitus; Hypertension; Bangladesh

Burden of Primary Caregivers in Caregiving of Schizophrenia Patients

Tahsin Tasneem Tabassum (tahsinhridi10@gmail.com)[1]

[1]East West Medical College

Introduction: Burden of primary caregiver for caring schizophrenia patients is a major health related issue in both developed and developing countries. Relevant information is very scarce in Bangladesh. So, the study aimed to identify factors associated with the burden of primary caregivers of patients with schizophrenia.

Methods: The descriptive cross-sectional study was conducted with 175 primary caregivers from January to December 2020. Purposive sampling was employed to select the participants from two tertiary care hospitals in Dhaka city. A pretested semi structured questionnaire was used to collect data by face-to-face interview and a checklist was used for medical record review. Informed consent was taken from the participants, and ethical issues were ensured. Data was analyzed using IBM SPSS.

Results: Mean ± SD age of the respondents was 34.02±10.45 years. Among all respondents, 71.4% were female and most of them (49.1%) were housewives. Their statistical significance was found (P<0.05). Regarding marital status, the majority (65.8%) were married. In relationships with patients, spouses (32.1%) had moderate to severe burden. This difference was statistically significant (P<0.05). The primary caregivers with schizophrenia patients in Stage 1 of illness (53.2%) and those with duration of illness < 5 years (66.1%) had moderate to severe burden. This difference was statistically significant (P<0.05). In regard to the level of caregiver burden, most of the respondents (62.3%) experienced moderate to severe burden followed by 21.7% respondents who experienced mild to moderate caregiver burden.

Conclusion: Most of the caregivers of schizophrenia patients experience a significantly severe level of burden. Therefore, measures should be taken to decrease primary caregiver burden rate.

Keywords: Caregivers; Schizophrenia; Cost of Illness

The Proportion and Associated Factors of Congenital Heart Disease Among Under-Five Children Admitted in A Selected Tertiary Level Child Hospital of Dhaka City

Ulfat Ara (dr_naju@yahoo.com)[1], Suvadra Mohonto Pret[1], Sarder Mahmud Hossain[1]

[1]Department of Public Health, Northern University Bangladesh, Dhaka, Bangladesh

Introduction: Congenital heart disease is an immense, fast-rising global crisis in child health. Most Congenital Heart Disease results from problems in the child's heart development. The objective of the study was to find out the proportion and associated factors of congenital heart disease among the under-five children.

Methods: The study was a descriptive type of cross-section study conducted among the under-five admitted children in a selected tertiary level Children Hospital of Dhaka city (Dhaka Shishu Hospital) with a sample size of 150, at least 20 samples randomly selected from each ward. Data

was collected from mothers of the children by face-to-face interview through questionnaire and from hospital records. The collected data was entered and analyzed by using Statistical Package for Social Sciences v 21.0.

Results: From the study result, we found that 64% of children were Boys and 64.1% belonged to 1day-12 months age group, 41% mothers had primary level education, 36.0% father was Job holder and 54.6 % had monthly family income within BDT 20001-30000. The study reveals that most of the respondents (93.3%) visited antenatal care. Of them 39.3% visited 3 times during their pregnancy period and 82.7% of Respondents had taken necessary Vitamins and Minerals supplement during their pregnancy period. The study results also found that 8% of children were admitted to the hospital with CHD and 48.7% of children had stayed in the hospital for 3-4 days, 58% had a positive family history of heart disease and proportion of CHD among the admitted children was 15.3%. There was a significant association found between the age of the mother and the CHD of children (p- 0.03).

Conclusion: All efforts for early detection of congenital heart diseases must be taken for timely and better treatment, to avoid its consequence, improve survival, and quality of life.

Keywords: Child; Heart Defects, Congenital; Hospitals; Bangladesh

Triggering Factors Associated with Cognitive Impairment Among Senior Citizens of Old Homes in Dhaka, Bangladesh

Nasrin Akter[1] (nasrin.ddc@gmail.com), Lubna Yesmin[1], Bilkis Banu[1], Sujana Haque Chowdhury[1], Sarder Mahmud Hossain [1]

[1]*Northern University Bangladesh*

Introduction: Bangladesh, like other developing countries, is presently witnessing a great burden of rapid aging and losing the social values of older adults due to age-related cognitive impairment and rising neurodegenerative dementia. This study was designed to assess the cognitive impairment as well as depression among older adults in relation to their socio-demographic condition.

Methods: It was a cross-sectional survey among randomly selected 200 older adults aged between 60-80 years residing in some old home in Dhaka district, Bangladesh. Data were collected by face-to-face interview while Cognitive function and level of depression was assessed by applying standardized Mini-Mental State Examination (MMSE) of Folstein and Geriatric Depression Scale (GDS).

Results: Among the respondents, the majority (81.5%) were staying in an old home for 1-5 years. To observe the functional disabilities mostly (91.0%) had difficulty with vision, 40.7% had difficulty with hearing and 19.6% had difficulty in moving around. MMSE test revealed almost half (43%) had moderate cognitive impairment, 36% had mild and 19.5% may be normal while more than half (43%) of the respondents had severe depression. A strong statistical association was found between educational status and level of depression (p=<0.001) which clarified that higher educated (Graduation/above) respondents had more severe depression (OR/p=6.33/<0.01; CI: 2.36-16.96). In addition, severely depressed respondents had more severe cognitive impairment (OR/p=3.99/<0.001; 2.21-7.22).

Conclusion: Furthermore, Functional disabilities were also the greater concern for cognitive impairment and depression. Finally, there is a great need to develop packages and programs of care for people with depression/ cognitive impairment disease and their caregivers, which are capable of being scaled up across the country's mixed health-care delivery system.

Keywords: Cognitive Dysfunction; Bangladesh

Baseline Prevalence of Noncommunicable Diseases Risk Factors: Overall Outcome from The Application of WHO PEN Interventions

Palash Chandra Banik[1], **Mithila Faruque**[1], **Lingkan Barua**[1], **Shagoofa Rakhshanda**[2], **Riffat Ara Shawon**[2], **Fazlur Rahman**[2], **Saidur Rahman Mashreky**[1,2]

[1]*Department of Noncommunicable Diseases, Bangladesh University of Health Sciences (BUHS), Dhaka, Bangladesh;* [2]*Centre for Injury Prevention and Research Bangladesh (CIPRB), Dhaka, Bangladesh*

Introduction: Tobacco use is a significant public health problem in Bangladesh which is associated with the occurrence of various noncommunicable diseases especially heart disease, stroke and cancer. In this context, the study aimed to determine the gender-based prevalence of tobacco use among the rural adults in Raiganj Upazila of Sirajganj District.

Methods: This study was part of a cross-sectional study that applied the WHO Package of Essential Noncommunicable Disease protocol in a rural area of Bangladesh for prevention of hypertension and diabetes. Sociodemographic and tobacco use-related information were collected following the standard protocol described in the WHO STEP-wise approach. Census was used as the sampling technique. The analysis included proportion, 95% CI, mean and standard deviation.

Results: A total of 22,270 respondents' data were analyzed and 54.9% (n=12219) were female. The mean age was 42.5 ($\pm$15.8) years. The mean duration of smoking was 17.2$\pm$10.1 years. One-fifth (17.7%; 95% CI, 17.2-18.2) respondents were current smokers. Men 38.7% (37.7-39.7) smoked more compared to women (0.4%; 0.3-0.5) and the difference was highly significant (p<0.001). One in every four (26.5%; 25.9-27.1) adults were smokeless tobacco (SLT) users and almost equal for men (26.4%; 25.5-27.3) and women (26.6%; 25.8-27.4). One in every twenty (6%; 5.7-6.3) adults used both forms (smoking and smokeless) of tobacco, whereas one in ten (13.1%; 12.4-13.8) men used both forms, and the difference was highly significant (p<0.001) by sex. More than two-fifth (40.3%; 39.7-40.9) of the respondents consumed tobacco either in smoking or smokeless form. Moreover, more than half (54.8%; 53.8-55.8) of the adults' men and one quarter (28.3%; 27.5-29.1) women used tobacco in either form, and the difference was highly significant (p<0.001) whereas, 15.5% (15.0-16.0) (men-13.4%; 13.0-13.8, and women-17.2%; 16.7-17.7) respondents were exposed to passive smoking. 3.4% (3.2-3.6) and 1.8% (1.6-2.0) of adults were past smokers and smokeless tobacco users, respectively.

Conclusions: A significant proportion of the rural adults are tobacco users, which demands an urgent awareness raising among the rural population to reduce the burden of chronic diseases as a consequence of tobacco use.

Keywords: Noncommunicable Diseases; Prevalence; Risk Factors; World Health Organization

Identification of Pathogenic Mutation in Thyroid Stimulating Hormone Receptor (TSHR)

Mst. Noorjahan Begum (noorjahan.maliha@gmail.com)[1,2], Rumana Mahtarin1, Md Tarikul Islam[1], Tasnia Kawsar Konika[1], Shahinur Haque[3], Kaiissar Mannoor [1], Sharif Akhteruzzaman[2], Firdausi Qadri (fqadri333@gmail.com)[1, 4]

[1]*Institute for Developing Science and Health Initiatives, Mohakhali, Dhaka,* [2]*Department of Genetic Engineering & Biotechnology, University of Dhaka,* [3]*Nuclear Medicine and Allied Sciences, Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka, Bangladesh;* [4]*Department of Enteric and Respiratory Infectious Diseases, IDD, icddr,b*

Introduction: The disorder of thyroid gland development or thyroid dysgenesis (TH) accounts for 80-85% cases of congenital hypothyroidism (CH). Hence, understanding the molecular etiology of TH is prerequisite. Mutations in TSHR genes are mostly associated with thyroid dysgenesis, preventing or disrupting normal development of the gland.

Method: The current study detects one nonsynonymous mutation (p. Ser508Leu) and one synonymous (p.Asp727Glu) mutation in transmembrane (TM)-region (Exon 10) of TSHR gene in 21 patients with Dysgenesis by sequencing-based analysis. Later, the transmembrane (TM)-region of TSHR protein is modeled by homology modeling. Transmembrane (TM)-region of TSHR protein is targeted by small molecule drugs (MS437 and MS 438) to perceive the effect of mutations.

Results: The damaging effect in drug-protein complexes of mutants were envisaged by molecular docking and interactions. Molecular dynamics simulates dynamic behavior of wild type and mutant complexes. PCA reveals structural and energy profile discrepancies.

Conclusion: The study might be helpful to understand molecular etiology of thyroid dysgenesis (TH) exploring the mutational impact on TSHR protein to the interaction with agonists.

Keywords: Receptors, Thyrotropin; Mutation

HER2-targeting nanobody for selectively entering HER2-positive breast cancer cells

Farhadul Islam (farhad_bio83@ru.ac.bd)[1], Jian Zhan[2], Jahan Ara Khanam[1], Yaoqi Zhou[2]

[1]*Department of Biochemistry and Molecular Biology, Rajshahi University, Rajshahi, Bangladesh;* [2]*Institute for Glycomics, Griffith University, Gold Coast, Australia*

Introduction: Cancer cells differ from normal cells by displaying different molecules on cancer-cell surfaces. For example, a protein called human epidermal growth factor receptor 2 (HER2) is more abundant on the surface of breast cancer cells. Therefore, a miniature antibody called nanobody-targeting HER2 has the potential to deliver cancer-killing drugs to HER2-positive cancer cells selectively. Nanobodies usually cannot pass through the negatively charged cell membrane of mammalian cells. However, simply replacing some surface amino-acid residues with positively charged amino acids will convert them from cell-impermeable to universally cell-permeable.

Methods: HER2 nanobody 2Rs15d were isolated and purified from the periplasmic extract of *E. Coli* 5DHα cells. Then, the purified nanobody conjugated with drugs to deliver the target cells.

Finally, in vitro and in vivo assays were performed to examine the anticancer efficacy of the conjugate.

Results: Here we tested a HER2-targeting nanobody into a selective drug delivery vector by tuning its surface charge to deliver drugs into HER2-positive breast cancer cells only. We have resurfaced 27 variants of original HER2 (2Rs15d) nanobody by replacing surface amino acids, ranging from low positive charge (+1) to high positive (+13). The resurfaced nanobodies recognized and bind the HER2 selectively in HER2 positive cells (MCF7), whereas they failed to bind triple negative breast cancer cells (MDA MB231). Most importantly, these nanobodies selectively deliver the payloads (fluorescence tag and anticancer drugs) to the HER2 positive cells. Fluorescence microscopy and flow cytometry analysis shows characteristic endosomal distribution of nanobodies. In addition, nanobody uptake is inhibited by incubation at low temperature and cellular ATP pool depletion and in presence of endocytosis inhibitors. In vitro and in vivo assays demonstrated significant anticancer properties of the conjugate against HER2-positive cells and reduced the host toxic effects remarkable when compared to the parent drugs treated group.

Conclusion: These results suggest that resurfaced nanobodies could lead HER2-targeted chemotherapy delivery against HER2-positive cancers with higher efficacy and lower toxicity than conventional chemotherapy.

Keywords: Receptor, ErbB-2; Single-Domain Antibodies; Neoplasms

Tobacco Smoking Status of College Going Male Adolescents in Dhaka City: A Case Report

Farzana Nusrat (tania45m@gmail.com)[1], Fariha Haseen[2], Syed Shariful Islam[2]

[1]*Dhaka Medical College, Lecturer, Community Medicine;* [2]*Department of Public Health and Informatics, Bangabandhu Sheikh Mujib Medical University*

Introduction: Tobacco smoking is that type of bad habit and addiction which causes nothing but death and many more non-communicable diseases. Tobacco is one of the major preventable leading causes of death in the world. According to the World Health Organization, tobacco kills more than 7 million people each year. In Bangladesh, about 56.4 percent smokers started smoking at age of 12-13 years. This study aimed to find out the status of tobacco smoking by adolescent smokers.

Method: A larger study was conducted among college going students from Dhaka city. This part of study included 91 ever-smoker of 15-19 years old (who smoked at least a single puff of cigarette in a life time was called ever smoker). This descriptive analysis shows a pattern of tobacco smoking among 91 ever-smoker male adolescents. Results were expressed by frequency, percentage and continuous variables were expressed in mean, SD. We collected data by a self-administered Bangla questionnaire which included questions of tobacco smoking behaviour from September 2018 to October 2018.

Result: This study revealed that about 68.7 percent ever smokers were 18 to 19 years old. Sixty-nine current smokers smoked daily and forty four percent smokers-initiated smoking at or below age of 16. Among them 50 percent smoked due to peer pressure. Forty smokers currently smoked at public places and most of them smoked with their friends. Among 90 smokers 25 smokers

smoked 1 to 6 cigarettes daily. Most smokers collected tobacco products from stores.

Conclusion: Bangladesh is a home of 36 million adolescents, making up 22 percent of the population. So, this is the time to be concerned about our adolescent group and try to modify their risky behaviour such as tobacco smoking to prevent non-communicable diseases.

Keywords: Adolescent; Smoking; Adolescent Behavior; Bangladesh

Prevalence Of Hypertension in Adult Population Living in Hilly and Coastal Regions of Southeastern Bangladesh

Nabilah Ibnat[1], Aminul Islam[1], Mahin Al Nahian[1], Hemel Das[1], SMA Hanifi[1]

[1]*Population Science, Health System and Population Studies Division, International Centre for Diarrhoeal Disease search, Bangladesh*

Introduction: Hypertension is one of the major risk factors for premature cardiovascular diseases and mortality. The objective of our study is to measure the prevalence of hypertension among adult population in coastal and hilly regions in southeastern Bangladesh. We further explored different risk factors for hypertension in the study area.

Methods: The cross-sectional study was conducted at three villages in Chakaria sub-district of southeastern Bangladesh located beside hills and Bay of Bengal in 2019. A total 450 respondents aged ≥ 35 years were recruited in the study and data were collected using semi-structured questionnaires. Medical assistant (MA)/ Midwives were responsible for measuring the blood pressure (BP). Hypertension was categorized as systolic BP ≥140 mm Hg or diastolic BP ≥90 mm Hg.

Results: The overall prevalence of hypertension was 37.1% among both male and female participants aged ≥ 35 years. More specifically, 41.4% of respondents living in the hilly region had hypertension while in the coastal region approximately 32.6% of respondents have raised blood pressure (hypertension). In addition, the prevalence of hypertension in male and females were 32.9% and 39.4%, respectively, indicating more females were hypertensive than male [OR: 1.7 (95% CI (1.0-2.8), p-value=0.031)]. Multivariate analysis demonstrated that elderly population was more hypertensive compared to the younger population.

Conclusion: According to BDHS report 2020, the prevalence of hypertension is 43% in rural women and 33% in men which is quite similar with our findings. More than one in three adult study participants were hypertensive, which is of serious concern from a public health perspective.

Keywords: Adult; Prevalence; Hypertension; Blood Pressure; Bangladesh

The Pattern of Diabetic Care Among the Ambulatory Patients Attending Tertiary Care Hospitals in Bangladesh Across Gender and Socio-Economic Status

Noshin Farzana (noshin.farzana@icddrb.org)[1], Md.Saimul Islam[1], Aliya Naheed[1]

[1]Initiative for Non Communicable Diseases, HSPSD, icddr,b, Dhaka, Bangladesh

Introduction: We explored the pattern of diabetic care among ambulatory diabetic patients at public teaching hospitals in Bangladesh, and assessed the relationship of glycaemic control (GC) with socio economic status (SES) and cardiometabolic risks.

Methods: Any individual ≥18 years of age with a medical record being treated for diabetes at the study hospitals were recruited following a consent. Data were obtained on age, sex, income, pattern of diabetic care, behavior (tobacco, salt intake, fruits and vegetable, and physical activity (PA)). Body mass index (BMI) and blood pressure were measured. Three mL of venous blood was obtained for assessing HbA1C status and lipid profile.

Result: Total 465 patients were recruited having a mean (±SD) age 49.3 years (±11), 56% were female, 35.7% had less than a primary education and median income was 288 USD (IQR: 179-501). Overall, 59.9% patients visited a health facility in the past six months and 60.2% followed a treatment plan including drug, diet and PA, 23.7% followed a plan including any two of the three, and 16.1% followed a plan including any one of the three. One-third patients (31.4%) had a GC (HbA1C>7%), which did not vary across age, sex, and income. Those individuals who had a college degree (44.4% vs. 28.7%, P=0.024), who consumed tobacco (29.5% vs. 35.5%), who used extra salt (24.8% vs. 38.1), and who had less frequently consumed fruits (28.6% vs. 41.8%) had a poorer GC compared to who did not. HbA1C status was negatively correlated with BMI ($r=-0.241$, P<0.001), and positively correlated with total cholesterol ($r=0.242$, P<0.001), LDL ($r=0.243$, P<0.001), and Triglyceride ($r=0.111$, P=0.017), while was not correlated with blood pressure.

Conclusion: This study demonstrates that higher education, fruit consumption, avoiding extra salt tobacco use, and controlled lipid profile attribute to GC, while lower BMI attribute to poorer GC control. Comprehensive diabetic care plan at hospital OPDs would be necessary for effective GC among ambulatory diabetic patients in Bangladesh.

Keywords: Economic Status; Tertiary Care Centers; Diabetes Mellitus; Socioeconomic Factors; Social Class; Bangladesh

Characteristic Variation of Pediatric and Adult Onset Refractory Spondyloarthritis Patients Attending A Rheumatology Clinic

Md Nazrul Islam[1], Ashik Uz Zaman[2], Fahid Bin Nazrul[2], Nira Ferdous[3], Naziya Anjum[2], Rasker JJ[4]

[1]Department of Rheumatology, Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka, Bangladesh; [2]Department of Rheumatology, Modern One Stop Arthritis Care and Research Center® (MOAC&RC®), Dhaka, Bangladesh; [3]Department of Medicine, MH Samorita Medical College, Dhaka, Bangladesh; [4]Department of Psychology, Health and Technology, University of Twente, Enschede, The Netherlands

Introduction: Clinical and demographic characteristics of pediatric onset spondyloarthritis (SpA) may be different from adult-onset SpA. This study was aimed to compare the clinical and demographic characteristics of pediatric-onset refractory spondyloarthritis (POSpA) (<18 years) with a group of adult-onset (>18 years) refractory adult-onset spondyloarthritis (AOSpA) patients.

Methods: In this prospective, observational, single-centre cohort with 215 SpA patients (refractory to two NSAIDs and/or DMARDs) were enrolled following Assessment of SpondyloArthritis International Society (ASAS) classification criteria from Modern One Stop Arthritis Care and Research Center, a rheumatology clinic in Bangladesh. Patients were divided into two groups; POSpA and AOSpA group. Disease activity was assessed using Bath Ankylosing Spondylitis Disease Activity Index (BASDAI), Modified stoke ankylosing spondylitis spinal score (mSASSS), Ankylosing Spondylitis Disease Activity Score (ASDAS-ESR and ASDAS-CRP). Laboratory investigations- ESR, CRP, HLA-B-27, and X-ray of lumbo-sacral spine were done. Socio-demographic and clinical characteristics were analyzed using independent sample t-test and chi-square test.

Results: Among 215 patients, 57 (male 53, female 4) were presented with pediatric onset of disease. Mean age of POSpA and AOSpA was 27.68 ± 9.5 and 40.28 ± 10 years respectively. The rate of axial SpA, peripheral SpA and psoriatic arthritis patients in POSpA and AOSpA group was 49 (86%) vs 129 (81.6%), 3 (5.2%) vs 12 (7.6%) and 5 (8.8%) vs 17 (10.8%) respectively. Uveitis was present in 26.3% (15) among POSpA and 18.4% (29) among AOSpA group. HLA-B27 was done in 20 (positive 19, 95%) and 61 (positive 55, 90.16%) subjects of POSpA and AOSpA group respectively. Male gender ($p=0.001$), disease duration ($p<0.001$), PGA ($p=0.03$), ASDAS-CRP ($p=0.028$), ASDAS-ESR ($p=0.016$), Hb% ($p=0.04$), serum creatinine ($p=0.01$) and BASFI ($p=0.018$) were significantly associated with POSpA. The BMI ($p<0.001$), hip involvement ($p=0.003$), sacroiliitis grade 4 ($p=0.06$), BASDAI ($P=0.09$), mSASSS ($p=0.02$), and ESR ($p=0.02$) were significantly higher in AOSpA.

Conclusions: Male gender, uveitis, HLA-B27, disease duration and ASDAS score were higher in POSpA patients. In AOSpA group, ESR, BMI, sacroiliitis (grade 4), hip involvement, BASDAI and mSASSS score were higher.

Keywords: Child; Adult; Rheumatology; Spondylarthritis; Rheumatic Diseases; Transition to Adult Care

---

ABS-091

Prevalence and Characteristics of COVID-19 Infection among Rheumatic Patients Based on Online Survey: A Study from Bangladesh

Nira Ferdous [2&3], **Md. Nazrul Islam** [1&2], **Mahfil Ara Rahman** [2], **Ashik Uz Zaman** [2], **Fahid Bin Nazrul** [2&4], **Naziya Anjum** [2]

[1]Department of Rheumatology, Bangabandhu Sheikh Mujib Medical University (BSMMU), [2]Modern One Stop Arthritis Care and Research Center® (MOAC&RC®), Dhaka, Bangladesh, [3]Department of Medicine, MH Samorita Hospital and Medical College, Dhaka, [4]National Heart Foundation Hospital and Research Institute

Introduction: The occurrence of COVID-19 infection in rheumatic patients and their evaluation are of global interest. The purpose of this study was to determine the rate of COVID-19 infection among rheumatic patients.

Method: From online consultancy, 167 patients of both genders were enrolled from 13th June to 5th July 2020. The WHO case definition of COVID-19 and disease severity scoring tool were used

for diagnosis and assessment of the patients. Suspected cases were interviewed in detail and investigated with RT-PCR for COVID-19, HRCT of the chest, X-ray chest P/A view and other necessary tests. RT-PCR negative cases were defined as suspected case of COVID-19 infection based on clinical features, X-ray chest and HRCT. The rate of COVID-19 infection was expressed in percentage.

Results: Out of 167 rheumatic subjects, 64 and 103 were men and women respectively, with a mean age of 42.15±13.04 years. The rate of COVID-19 infection was 7.78% (13/167). RT-PCR was positive in 9 (69.23%) patients and the remaining were suspected cases. Among infected patients, SpA, RA, SLE, and OA knee were 7 (53.84%), 2 (15.38%), 1 (7.69%), and 3 (23.08%) respectively. Ongoing DMARDs/biologics were in 3 (tofacitinib), 1 (etanercept), 1 (methotrexate), 1 (sulphasalazine), 1 (hydroxychloroquine) and 1 (leflunomide) patient. The use of non-specific drugs for COVID-19 treatment were azithromycin, ivermectin, doxycycline, and hydroxychloroquine. Based on COVID-19 severity score, patients were categorised into 9 mild (69.23%), 1 moderate (7.69%), 2 severe (15.38%), and 1 critical (7.69%). Four cases (2 severe, 1 moderate, 1 mild) were between the age group 50-59 years and 1 critical patient was ≥60 years. Among 13 infected patients, prevalent comorbidities were HTN (38.5%), BA (30.8%), DM (30.8%), hypothyroidism (15.4%) and others (46.2%).

Conclusion: COVID-19 infection in rheumatic patients is common. Age, anti-rheumatic drugs and comorbidities may influence higher rate of infection in rheumatic patients.

Keywords: Prevalence; COVID-19; SARS-CoV-2; Rheumatic Heart Disease; Bangladesh

Prevalence of Osteoporosis and Associated Factors in Patients Attending a Rheumatology Clinic- Study from a Developing Country

Md. Nazrul Islam (islam1nazrul@gmail.com)[1], Asif Khan[1], Fahid Bin Nazrul[2], Nira Ferdous[3], Naziya Anjum[2], Masum Billah[2], J. Rasker[4]

[1]Department of Rheumatology, Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka, [2]Modern One Stop Arthritis Care and Research Center®, Dhaka, [3]Department of Medicine MH Samorita Medical College & Modern One Stop Arthritis Care & Research Center, Dhaka, Bangladesh, [4]Department of Psychology, Health and Technology, University of Twente, Enschede, The Netherlands

Introduction: Osteoporosis is an emerging health issue of developing countries including Bangladesh. This study was aimed to determine the prevalence of osteoporosis and associated factors in patients attending a rheumatology clinic.

Methods: Consecutive 267 (254 women, 13 men) patients aged ≥50 years were enrolled in a rheumatology clinic of Dhaka from January 2015 to January 2018. Subjects were evaluated clinically and by laboratory investigations. The T score of <-2.5, -1.00-2.5 and >-0.99 were for osteoporosis, osteopenia and normal BMD respectively. The FRAX score with or without BMD ≥20% and ≥3% indicates 10-year probability of major osteoporotic fracture risk and hip fracture respectively. Risk factors were evaluated using logistic regression.

Results: A total of 267 (female 254, male13) patients were enrolled. Mean age was 64.64±8.12 years. Prevalence of osteoporosis and osteopenia at vertebra (L1-L4) was 38.2% (102) and 42.7%

(114), and at hip, 13.1% (35) and 51.7% (138) respectively. The prevalence of major osteoporotic fracture risk was 3.7% (10) and hip fracture was 4.1% (11). Height loss, unexplained low back pain and early menopause were in 49.4% (132), 43.56% (115), and 18.5% (46) cases respectively. Age at menopause was 47.22±5.33 years and duration of menopause at enrollment was 17.44±7.94 years. Rheumatoid arthritis was in 17.2% cases. Serum calcium was low in 6.3%, insufficient serum vitamin D in 74.3%, and serum creatinine was high in 16.9% patients. Obese and overweight were found in 66% and under-nutrition in 6.4% patients. Tobacco use and steroid use were in 42.3% (113) and 10.5% (28) patients respectively. Age, sex, BMI, tobacco consumption, rheumatoid arthritis and steroid use were significant risk factors.

Conclusions: Osteoporosis and osteopenia are prevalent conditions among patients above 50 years of age. Vitamin D insufficiency, lifestyle factors, rheumatoid arthritis and steroid use may contribute to the development of osteoporosis.

Keywords: Rheumatology; Prevalence; Developing Countries; Osteoporosis; Bone Density

---

Association of Serum Vitamin A and Zinc with Diabetic Retinopathy in Bangladesh: A Cross-Sectional Study

Farjana Yeasmin (yeasminfarjana60@yahoo.com), Md. Ashikur Rahman, Farzana Akonjee Mishu, Asma Rahman, Md. Latiful Bari, Taufique Joarder

[1]Bangladesh Institute of Research and Rehabilitation in Diabetes, Endocrine and Metabolic Disorders (BIRDEM); [2]Department of Public Health, North South University; [3]Bangladesh Institute of Research and Rehabilitation in Diabetes, Endocrine and Metabolic Disorders (BIRDEM); [4]Centre for Advanced Research in Sciences (CARS); 5Public Health Foundation, Bangladesh

Introduction: Diabetic retinopathy (DR) is a common microvascular disorder that occurs in people with Diabetes Mellitus (DM). It is characterized by a variety of lesions within the retina and is the leading cause of blindness in adults. Previous studies found that reduced Vitamin A and Zinc (Zn) levels are causes of the development of DR. This association has not been verified in Bangladeshi patients before. Hence, the aim of this study is to find out the association of serum Vitamin A and Zn level with DR.

Method: This was a cross-sectional study conducted in BIRDEM General Hospital from January 2021 to December 2021. We purposively sampled 93 patients (cases, i.e., DM with DR 42; and controls, i.e., DM without DR 51) from inpatient and outpatient of Department of Ophthalmology. We filled out structured questionnaire for age, sex, and socioeconomic status, and collected blood to conduct biochemical tests for serum Vitamin A and Zn. We analyzed data by descriptive statistics and Student's *t*-test using Stata SE version 16.

Results: Among the respondents, 51.6% are females and the rest, males. Their mean age is 51.91 (Standard Deviation [SD] 9.49) years. Mean Vitamin A level is 30.98 (SD 2.28) microgram/deciliter, but there is no statistically significant difference between the cases and the controls. Mean Zn level is 1.36 (SD 0.37) milligram/milliliter. Mean serum Zn level among the cases is 1.24 (SD 0.30) and that among the controls is 1.45 (SD 0.40) milligram/milliliter and the difference is statistically significant at 0.05 level. Neither Vitamin A nor Zn level varies by socioeconomic status.

Conclusion: This study can play an important role to assess the association of serum Vitamin A and Zn with DR. This understanding will help in designing micronutrient interventions for Bangladeshi DR patients.

Keywords: Diabetic Retinopathy; Cross-Sectional Studies; Vitamin A; Zinc; Vitamin D; Diabetes Mellitus, Type 2; Bangladesh

---

Immunophenotyping of Cytologic Specimens by Flow Cytometry in Patients with or Without Prior Hematologic Malignancy

Shirin Tarafder (starafder2007@yahoo.com)[1]

[1]*Department of Microbiology and Immunology, Bangabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh*

Introduction: Cytopathologists are frequently confronted with lymphocyte-rich effusions, and definite decision of reactive lymphocytosis or indolent lymphoma may be extremely difficult based on microscopy alone, where small proportions of malignant cells can be detected by flow cytometry. The study aimed to confirm the diagnosis of leukemia or lymphoma in body fluids and FNA specimens using multiparameter flow cytometry (MFC) immunophenotyping, which is a powerful tool for detecting hematologic malignancies.

Methods: Body fluids and FNA specimens simultaneously obtained for MFC, cytologic analysis and Real time PCR from 30 patients were submitted to the flow cytometry laboratory from January 2017 to September 2019. The samples were 16 body fluids (11 pleural fluids; 5 ascitic fluids) and 14 FNA samples (13 lymph nodes; 1 lung mass). A panel of fluorochrome monoclonal antibodies against lymphoma and leukemia markers were used. The cases were diagnosed as leukemia or lymphoma as per the World Health Organization (WHO) 2008 guideline.

Results: Among 30 cases, 27(90%) showed immunophenotype consistent with malignancy. *Mycobacterium tuberculosis* DNA was positive in 3(10%) cases. Pleural fluid (n=11) samples were positive for 4 diffuse large B-cell lymphoma (DLBCL), 4 angioimmunoblastic T-cell lymphoma (AITL), 1 T-lymphoblastic lymphoma (T-LbLy), 1 thymoma, 1 tuberculosis. Ascitic fluid (n=5) samples showed positivity for 4 AITL and 1 DLBCL. FNA (n=14) were positive for 2 T-LbLy, 2 AITL, 3 DLBCL, 1 Hodgkin lymphoma, 1 nodular lymphocyte predominant Hodgkin lymphoma, 1 peripheral T-cell lymphoma (NOS), 1 splenic B-cell marginal zone lymphoma, 1 tumor of neural cell origin, 2 tuberculosis. Both immunophenotype and cytomorphology positive for malignancy were in 19/30(63.33%) cases. Cytomorphology was negative/ suspicious in 11/30(36.67%) cases, of which immunophenotype positive cases were 8/11(26.67%).

Conclusion: Multiparametric flow cytometry is an invaluable tool to diagnose hematologic malignancies in body fluid/FNA as malignant cells can be missed out by cytomorphology.

Keywords: Immunophenotyping; Flow Cytometry; Hematologic Neoplasms

Factors Associated with Remission of Lupus Nephritis with Treatment

Nadia Shabnam (dr.nadiashabnam@gmail.com)[1]

[1]National Institute of Traumatology & Orthopaedic Rehabilitation (NITOR)

Objectives: To identify the factors associated with remission of lupus nephritis with treatment

Methods: This case-control study was conducted in the department of Rheumatology BSMMU, Dhaka, from September 2020 to March 2021. Patients of both genders aged ≥18 years who received at least one year of treatment for LN, regardless of the treatment, were enrolled after having informed written consent. The patients in remission (comprising the remission group) were considered as cases and those not in remission (comprising the non-remission) were considered as controls. Age, gender, height, weight, education level, marital status, occupation, age at the onset of disease, duration of the disease, proliferative versus non-proliferative nature of LN and the immunosuppressive agents [cyclophosphamide (CYC) versus mycophenolate mofetil (MMF)] used for induction of remission were assessed as the independent variables. Bivariate analyses for comparison between remission and non-remission groups were done using student's t test for numerical and chi-square test for categorical variables. A probability value <0.05 was considered as significant.

Results: A total of 111 subjects were enrolled in the study: 104 females and 7 males. Mean age was 22.22 ± 8.22 years. 88 had proliferative and 23 non-proliferative lupus nephritis. 62 (56%) were in remission. 59 and 38 were treated with CYC and MMF respectively for initial induction. 38 (64.4%) and 19 (50%) respectively in the CYC and MMF groups enjoyed remission during enrolment (P = 0.101). The difference between the two groups in other independent variables were also insignificant.

Conclusion: It appears that prediction of remission with treatment is not possible with the studied independent variables.

Keywords: Lupus Nephritis; Immunosuppressive Agents

Current Situation of Non-communicable Diseases among Rohingya Refugees in Bangladesh: Findings from a Record Review

Ipsita Sutradhar (ipsitaeva69@gmail.com)[1], Md Imran Hasan[2], Md. Mafizul I. Bulbul[3], Taufique Joarder[4]

[1]BRAC James P Grant School of Public Health, BRAC University; [2]International Centre for Diarrhoeal Disease Research, Bangladesh; [3]Ministry of Health and Family Welfare, Government of Bangladesh; [4]Public Health Foundation, Bangladesh

Introduction: Non-communicable Diseases (NCDs) are major public health concerns worldwide. However, the burden of NCDs is hardly investigated in Rohingya settlements. Understanding the current situation of NCDs is important for the prevention and control of these diseases. So, we conducted this review to understand the current status of NCDs among Rohingya refugees in Bangladesh.

Method: A systematic literature search was conducted in July 2018 using predefined selection criteria. Both peer-reviewed and gray literature were searched in databases: Google Scholar, PubMed and Google. We searched and screened all the documents and extracted data from the eligible documents (12 articles and 21 organizational reports). Data analysis was done thematically.

Results: In June 2018, nearly one million Rohingya refugees from 212,415 families were residing in Bangladesh. We hardly found any study estimating the prevalence of NCDs in Rohingya settlements. A BRAC study reported that in March 2018, 51.5% and 14.2% of hospital attendees had hypertension and diabetes, respectively. NCD risk factors, such as using tobacco products, and indoor air pollution, are highly prevalent in Rohingya settlements. Additionally, 36.0% of Rohingya refugees had post-traumatic stress disorder (PTSD), whereas symptoms of depression and suicidal thoughts were present among 89.0% and 13.0% of individuals. Female children reported experiencing mental stress regarding their security, as they have to share toilets with the males, and they do not have private space in their tents for sleeping, bathing, and changing their clothes.

Conclusion: The actual burden of NCDs might currently be unknown due to the lack of efforts to detect these diseases in Rohingya camps. However, according to the existing evidence, NCDs, including mental health issues, are major public health concerns in Rohingya communities that need urgent attention from the policymakers and pertinent stakeholders.

Keyword: Noncommunicable Diseases; Refugees; Bangladesh

ABS-104

Periodontal Diseases Among the Type 1 Diabetes Mellitus Patients in Dhaka, Bangladesh

Nahid Sultana [1,2,3,4]

[1]University Dental College, Dhaka, [2]International Medical University, Malaysia; [3]Aziz Diagnostic Lab and Consultancy Centre; [4]One Health Centre for Research and Action

Introduction: Periodontal disease and diabetes mellitus both are the prevalent chronic diseases and global burden in the world. An increasing trend of periodontal disease is reported among diabetic patients in Bangladesh. This study aims to investigate the association of demographic characteristics, lifestyle factors, diabetic-related factors, and oral hygiene practice with periodontal disease among type 1 diabetes mellitus people in Bangladesh.

Method: Survey and clinical examination of this cross-sectional study were conducted in three well-known clinics in Dhaka. 306 sample size was estimated for the finite population by using Open Epi info v.3, and the confidence level was taken as 95%. A total of 182 participants were clinically examined based on inclusion and exclusion criteria. A P-value of< 0.05 was considered statistically significant.

Result: A higher prevalence of periodontitis was found compared to gingivitis among type 1 diabetes mellitus. About 30.2% of the respondents had moderate periodontitis, followed by mild periodontitis 28.6%. The majority of respondents (30.8%) had mild gingivitis and only 14.8% had moderate gingivitis. Furthermore, proportions of periodontitis and gingivitis were positively associated with age [(aOR1.12 (95%cis=1.07, 1.17)] and lower education. A significant association of periodontitis was found with the duration of diabetes [(aOR) 0.95 (95%cis=0.90, 0.99)] and frequency of toothbrushes (42-fold greater).

Conclusion: The findings of this study imply that dentists should emphasize on patients for well metabolic control to prevent the progression of periodontal disease.

Keywords: Diabetes Mellitus, Type 1; Periodontal Diseases; Diabetes Complications; Diabetes Mellitus, Type 2; Bangladesh

ABS-106

Prevalence, Awareness, Treatment and Control of Hypertension Among the Adult Peoples of Rohinga Refugees Camp Bangladesh

Tanjina Ahmed Chaklader (tanjinachak@gmail.com)[1], Farzana Mahejaben[1], Shyla Farsha[1], Shamima Parveen[1], Sabrina[1]

[1]*Dhaka Community Medical College*

Introduction: Hypertension is a major public-health challenge and risk factor leading to stroke, myocardial infarction, heart failure, chronic kidney diseases (CKD), and ultimately death. Higher prevalence in the urban area, same in both sex and low awareness in low income group. The aim of this study is to determine the prevalence, awareness, treatment and control of hypertension and to determine the relationship of socio-demographic characteristics with treatment and control among the adult of Rohinga Refugees camp Bangladesh.

Method: This was a cross sectional descriptive study design to determine the "prevalence, awareness, treatment and control of hypertension among the adult peoples of Rohinga Refugees camp Bangladesh". Study group was all age group (adult) of male and female, conducted in the Rohinga Refugees camp for three weeks. This study the sample size was 474.Convenient sampling technique was adopted to select the sample. A structured questionnaire was developed keeping the objectives & variables. Face to face interviews were conducted. Collected data were checked, verified & then analysis was carried out with SPSS windows software program.

Results: The total respondent of this study is 474.Regarding educational status, out of total respondents 274(57.8%) were illiterate and the rest of them were primary, secondary and educated up to tertiary level and above. The prevalence of hypertension in this study (60.9%) was quite higher. Almost 64(61.5%) hypertensive respondents were not taking antihypertensive drugs and only 40(38.5%) hypertensive respondents were taking. Most 215(45.4%) of the respondents have knowledge about hypertension and 259(54.6%) respondents didn't know.

Conclusion: Hypertension (HTN) is a growing important medical problem. The prevalence of hypertension among adults between 16.0-20.0% in Bangladesh. One in four adults had hypertension and awareness and treatment are quite low. Improvements in detection and treatment strategies are needed to prevent adult hypertension.

Keywords: Prevalence; Refugees; Hypertension; Risk Factors; Bangladesh

ABS-113

Alarming of Psoriasis in Public Health in Bangladesh

Mohammad Samiul Huq (samiuldr@yahoo.com)[1,2]

[1]*Square Hospital;* [2]*Psoriasis Awareness club Bangladesh*

Introduction: Psoriasis is a non-contagious, chronic, autoimmune disease of skin. Psoriasis is considered an incurable, long-term (chronic) inflammatory skin condition. The self-esteem and quality of life of patients with psoriasis is often diminished because of the appearance of their skin. Recently, it has become clear that people with psoriasis are more likely to have diabetes, high blood lipids, cardiovascular disease, and a variety of other inflammatory diseases. Public health problem/agenda related to burden of psoriasis includes, prevalence, age of onset, direct costs, indirect costs health care utilization, employment/work burden, health related quality of life. Like many other developing countries, In Bangladesh, the burden of psoriasis definitely impacts the health care system, as psoriasis is yet to be included under the NCD program of the country. Psoriasis patients are deprived from primary health facilities of the national health system in Bangladesh. Numerous studies have analyzed the influence of psoriasis on the quality of life and psychological health of patients. Only few studies have addressed the effect of the disease on individuals and cohabitants of psoriatic patients in developing countries, None in Bangladesh. Objective of the study is to assess the clinical severity, the physical and psychosocial disability and to analyze their interrelationship in psoriasis patients and cohabitants in Bangladesh.

Methods: Hospital based cross-sectional study was conducted. The study included patients and cohabitants. The questionnaire was administered to the patients. Their quality of life was measured with the Psoriasis Disability index (PDI) and Family Dermatology life quality index (FDLQI) , and their psychological state with Psoriasis life stress inventory (PLSI). The clinical severity by psoriasis area severity index (PASI) score. Appropriate test conducted using SPSS software.

Result: 225 patients (138 males, 87 females) were included in the study. The clinical PASI scores correlated significantly with the overall physical disability PDI (<0.0001), FDLQI(<0.0001) and individual aspects of the PDI. The higher the PASI index, the higher the PDI, PLSI and FDLQI scores, which indicated greater impact on QOL. Among the physical and psychological factors analyzed, daily activity, employment, leisure and treatment were reported to be affected the most. Relatives of female patients worry most.

Conclusion: Psoriasis markedly worsens the global well-being of patients and their cohabitants, who experienced an impairment of their quality of life and higher levels of anxiety and depression.

Keywords: Public Health; Psoriasis; Socioeconomic Factors; Bangladesh

---

ABS-115

Burden of Diabetic Retinopathy Among Ambulatory Patients Treated at outpatient departments in Hospitals in Bangladesh

Aliya Naheed[1], Md. Saimul Islam (saimul.islam@icddrb.org)[1],* Dipak NAG[2], Shahnaz Chowdhury[3], AHM Enayet Hossain[4]

[1]Initaitive for Noncommunicable Disease (INCD),icddr,b, Bangladesh; [2]Dept of Vitreo-retina, National Institute of Ophthalmology(NIO), Bangladesh; [3]Dept of Community Medicine, Bangladesh University of Health Sciences, Bangladesh; [4]Director General of Medical Education, MOHFW, Bangladesh

Introduction: We determined the prevalence and risk factors of diabetic retinopathy (DR) among ambulatory diabetic patients attending tertiary care hospitals in Bangladesh.

Methods: The medicine and ophthalmology OPDs of three large tertiary hospitals located in the major cities in Bangladesh and providing services for more than 10 years were randomly selected.

Patients who had a history of being treated for diabetes were identified by the regular physicians at the hospital' OPDs and were referred to the DR assessment centre located at the OPD following consent. All patients were tested for visual acuity using Snelllen chart and fundus photography was taken for assessment of DR. Blood samples were obtained to measure total cholesterol and HbA1C. Logistic regression was applied to explore sociodemographic, smoking and metabolic factors attributed to DR.

Results: Of 450 diabetics patients, 56% were female and mean age was 49 (SD 11) years. Of them 51% had diabetes for more than 5 years and 78% had raised blood glucose (HbA1C ≥6.5). The prevalence of DR was 23% with a higher prevalence in males than females (28% vs. 19%; P=0.026), and among older individuals (≥60 years) than younger ages (38% vs. 17%; P<0.001). The odd of DR was 2 times higher among ever smokers compared to never smokers (OR:2.03, CI:1.16-3.5); four times higher among those with uncontrolled glycaemia (OR:4.3, CI:2.0-10.0), five times higher if duration of diabetes was ≥5 years (OR:4.74, CI:2.82-8.0), and two times higher among those with raised total cholesterol (OR:2.4, CI:1.2-5.0) level. Odd of DR was three times higher among those with a low vision compared to those with a good vision (OR:2.8, CI:1.7-4.5). Multivariable analysis revealed an increased risk of DR in individuals with uncontrolled DM (OR:3.0, CI:1.2-7.4); DM ≥5 years (OR:4.1, CI:2.3-7.5) and low vision (OR:2.4, CI:1.2-13.8).

Conclusion: One out of four ambulatory diabetic patients suffer from DR. Uncontrolled diabetes for more than 5 years and impaired vision are predictors of DR. Routine fundus screening for DR in diabetic patients at hospital OPD may help early screening of DR and comprehensive diabetic care for prevention of DR.

Keywords: Diabetic Retinopathy; Hospitals; Diabetes Mellitus; Bangladesh

Health Seeking Behavior of the Aging Population and Cost of Health Care in Bangladesh

Aliya Naheed[1], Sanjida Binte Ali (sunjida27@gmail.com)[1], Md. Saimul Islam[1]

[1]Initiative for Noncommunicable Diseases, Health Systems and Population Studies Division, icddr,b,

Introduction: Household out-of-pocket healthcare expenditure is substantial in Bangladesh. We explored health seeking behavior among older people and cost in Bangladesh.

Methods: A community based cross-sectional study was undertaken in both urban and rural areas of seven divisions in Bangladesh. Participants were recruited through multi-staged sampling following a proportional allocation to size in each division with an equal number of participants across sex. Data were collected on sociodemographic characteristics, health-seeking patterns, and cost of care.

Results: Between June and December 2019, 2795 participants were recruited, with a mean age of 68.06 (±7.2) years, 51% were female, 42% never went school and 29% were currently engaged in wage earning. Two-third respondents reported a physical illness in the last six months, and 95% received treatment from various facilities, including private facilities (36%), drug sellers (35%), government facilities (16%) and multiple sources (12%). Individuals who never went to school more frequently received care from a drug seller (40%) followed by private facilities (34%) and government facilities (16.4%). Those who had completed primary education more frequently

received care from a private facility (41%) followed by drug seller (29%) and government facilities (17.3%). The median cost of treatment was 10$ (range:3-36$) and higher in females than males (12.0$ vs. 8.3$; P=0.002). Cost of treatment was lower if sought care from a drug seller ($3) than a private facility (24$) or a government facility (21$) (P<0.001). The common source of health financing was children's earning (63%) followed by self-earning (33%). Females depended more on children's earning than males (75% vs. 50%; P<0.001), while males depended more on self-earning than females (56% vs. 13%; P=0.023).

Conclusion: Older people rarely seek care from a qualified provider, particularly those with a low education. Cost of care for the older females is generally borne by their children. Developing a pragmatic financial model for supporting health care would improve access to quality care for older people in Bangladesh.

Keywords: Aged; Health Care Costs; Patient Acceptance of Health Care; Aging; Rural Population; Bangladesh

---

ABS-133

Risk Factors and Outcome of Early and Late Onset Preeclampsia

Tamima Sultana Elin (sultanaelin@gmail.com), Ferdousi Begum (fbegum9@gmail.com)

Introduction: Early-onset preeclampsia (EOP) and late-onset preeclampsia (LOP), defined as preeclampsia developed before and after 34 weeks of gestation, respectively. The early-onset disease is associated with poorer outcomes. The objectives of the study to identify the differences in risk factors and outcome of early and late onset preeclampsia

Methods: A case control study was carried out on pregnancy with preeclampsia (50 early onset preeclampsia EOP and 50 late onset preeclampsia LOP) and 50 controls at BIRDEM general hospital, Dhaka, Bangladesh from March to August 2019 using proper inclusion and exclusion criteria. Data were collected by using a pre tested semi structured questionnaire. Primary data were collected by interviewing study subjects and secondary data of cases were obtained from case records.

Result: As risk factors: past history of preeclampsia (OR 10.9; 95% CI 1.23-98.3), family history of hypertension (OR 3.4; 95% CI 1.35-8.57) were significantly associated with increased risk of early onset preeclampsia. Maternal complications like HELLP, Acute Kidney Failure (AKI) and fetal complications like Low Birth Weight (LBW), Intra Uterine Growth Restriction (IUGR) and Neonatal ICU admission were significantly more in EOP. No significant risk factor was identified in LOP group.

Conclusions: EOP is a distinct and a more severe clinical entity, associated with intrauterine growth restriction, high rates of adverse birth outcomes, a much earlier gestational age at onset and delivery. EOP and LOP should be addressed differently and national policy should be developed on screening and management.

Keywords: Placenta; Gestational Age; Pregnancy; Pre-Eclampsia; Risk Factors

An Analysis of Dietary and Lifestyle Habits Among Adults of Rural Bangladesh: A Nationwide Survey

Shahida Haque (shaque@bangladesh-ccp.org)[1], Kapil Ahmed[2], A. B. M. Rasheduzzaman[1], Nazrul Haque[1], H. M. Miraz Mahmud[1], Farzana Rahman[3]

[1]Bangladesh Center for Communication Programs; [2]Bangladesh Tobacco Control Research Network; [3]Development Alternatives Incorporated

Introduction: About 38 million people die every year due to non-communicable diseases (NCDs) where 82% occurred in low- and middle-income countries (LMICs). Modifiable risk factors like unhealthy diet, physical inactivity, alcohol and tobacco use are primary risk factors; while overweight, hypertension, raised total cholesterol and blood glucose are intermediate risk factors. The study estimated the prevalence of NCD risk factors among the rural communities of Bangladesh.

Method: The study was cross-sectional with a multistage stratified cluster sampling. Total 5,520 samples of adult population, both male and female, in rural areas of Bangladesh having age groups 18-69 years were representatively estimated from the country's eight divisions. The structured questionnaire was based on the STEPS manual of WHO. Statistical tests were performed to determine the relationships between respondents' background characteristics and the variables related to NCD risk factors.

Results: The prevalence of non-communicable diseases (self-reported) was 22.9%. Among them, 39.8% suffered from hypertension, 30.9% from COPD, 22.0% from diabetes, 18.8% from heart disease, 6.3% suffered stroke and 0.7% suffered from cancer. Overall, 21.2% respondents were using smoking tobacco; 27.1% were using smokeless tobacco, which was higher in older age groups and in women. About 30.7% of respondents were overweight (BMI 23.00-27.99 kg/m2) and 8.9% were obese. Only 2.1% consumed adequate fruits and vegetables; while 70.7% used extra salt with meals, and 43.5% consumed processed food high in salt. The prevalence of hypertension ($\geq$140/90 mmHg) was 18.3%.

Conclusion: The study concluded that the prevalence of NCD risk factors like tobacco use; inadequate intake of fruits and vegetables; overweight and obesity; and hypertension is quite high in the rural adult population of Bangladesh. Based on the evidence, a community-based social and behavior change communication (SBCC) intervention was designed to promote timely health seeking behavior and reduce NCD risk factors.

Keywords: Noncommunicable diseases; Risk factors; Feeding Behavior

Long-Term Efficacy and Safety of Lower Dosage Etanercept in Spondyloarthritis Patients: Study from a Tuberculosis Endemic Country

Md. Nazrul Islam1,2, Ashik Uz Zaman2, Nira Ferdous3, Mahfil Ara Rahman2, Fahid Bin Nazrul4, Injamul Haq Methun2, J. J. Rasker5

1Department of Rheumatology, Bangabandhu Sheikh Mujib Medical University, BSMMU; 2Modern One Stop Arthritis Care and Research Center® (MOAC&RC®), Bangladesh, 3Department of Medicine, MH Samorita Medical College; 4National Heart Foundation Hospital; 5Department of Psychology, Health and Technology, University of Twente, The Netherlands

Introduction: Bangladesh is one of the tuberculosis (TB) endemic countries. Biologics may be responsible for reactivation of TB. This study was aimed to determine the risk of TB and long term efficacy of lower dosage etanercept in refractory SpA.

Methods: This clinical trial was conducted in Modern One Stop Arthritis Care & Research Center, Dhaka from February 2015 to March 2018. Refractory SpA patients of both genders with BASDAI >4 was enrolled. Screening for TB (X-ray chest, TST) and clinical assessments (BASDAI, CRP) were done at baseline, then 3 monthly for 24 months. Etanercept 50 mg weekly was given subcutaneously in 1st month, fortnightly in 2nd and 3rd month, then every 21 days interval. Both clinical improvement (BASDAI) and CRP (<10 mg/L) were the basis of dose spacing. The difference in disease activity from baseline to 24 months was analyzed using paired t-test.

Results: A total of 142 patients were approached, 35 refused for resource constraint and 44 dropped out. One year follow up was completed by 63 (55 male / 8 female) patients, among them 20 completed 2 years. The mean numbers of injections were used 22.5 and 38.25 for 12 and for 24 months respectively. The mean age and disease duration were 36.10±11.2 years and 12.67±8.17 years. Chest X ray was normal in all patients (including 12 TST positive cases) at all visits. Mean CRP was (77.04±64.04 mg/L, 6.03±5.89 mg/L and 7.32±6.5 mg/L) and mean BASDAI was (5.39±1.7, 1.25±1.06 and 0.74±0.63) at baseline, 12th and 24th month respectively. The CRP and BASDAI changes were significant ($P<0.001$) at 12th and 24th month. Lower dosage etanercept protocol was effective in 84.13% cases and none developed TB.

Conclusion: In long term follow up, reactivation of TB was not observed in TST positive cases and effective in most of the refractory SpA patients.

Keywords: Etanercept; Spondylarthritis; Tuberculosis

ABS-103

Psychological Management of Adolescent Depression –A Case Study from Dhaka, Bangladesh

Md. Jianur Kabir[1], Md. Kaoser Bin Siddique[1], Shahanaz Parvin[1]

[1]Disabled Rehabilitation & Research Association (DRRA), Dhaka

Introduction: The World Health Organization estimates that until the year 2021, depression will be the second largest cause of the global disease burden. However, cases of depressive disorders have increased not only among adults, but also among children. Studies have shown that up to 9% of teenagers meet criteria for depression. Among them 1 in 5 teenagers having a history of depression at some point during adolescence. Psychological treatment especially Cognitive Behavioral Therapy (CBT) is a nonpharmacological psychological approach that teaches patients the cognitive and behavioral competencies needed to function in their interpersonal and intrapersonal worlds. According to Hollon et. al. cognitive behavior therapy is equally effective to antidepressant drug treatment. The aim of this study is to explore psychological management of adolescent depression.

Methods: This study used a qualitative single case study method. A 13- year-old diagnosed depressive disorder adolescent boy was purposely selected from a private hospital of Dhaka. Psychological assessment was done through a clinical interview with the client and his parents. This study used psycho education, formulation sharing, activity scheduling, problems solving approach, social skill, and assertive training, thought challenge, relaxation, family-based intervention, stimulus control, suicidal prevention work and blueprint CBT techniques to manage the client's problems. Written consent was taken from the participant and caregivers.

Result: This study found that different negative automatic thoughts are responsible for maintaining depression, so CBT was chosen as the treatment of client's problems. After 16 sessions the client adequately improved and based on the post assessment the client has been discharged. During discharge, outcome was measured by subjective rating of the client and it was very good. The referred psychiatrist also assessed and found the significant improvement. The referred psychiatrist assessed and treated the client with medication. He also mentioned his improvement. So, it is also evident that cognitive behavior therapy is effective in managing adolescent depression.

Conclusion: From the above case report, it found that the symptoms improved rapidly with cognitive behavior therapy. The finding of the study matched the finding of other studies. Therefore, this study recommended that CBT has been the most widely researched psychotherapy approach for treating depression in adolescents.

Keyword: Adolescent; Depression; Risk Factors; Bangladesh

ABS-092

Safety and Efficacy of Tofacitinib Versus Lower Dosage Etanercept in Patients with Refractory Spondyloarthritis: A Study from Bangladesh

N. Islam[1,2]; N. Ferdous[2,3]; A. U. Zaman[2]; N. Anjum[2]; M. A. Rahman[2]; F. B. Nazrul[2,4]; Y. Khatun[2]

[1]Department of Rheumatology, Bangabandhu Sheikh Mujib Medical University (BSMMU); [2]Modern One Stop Arthritis Care and Research Center® (MOAC&RC®); [3]Department of Medicine, MH Samorita Hospital and Medical College; [4]National Heart Foundation Hospital and Research Institute

Introduction: Most of the SpA patients become refractory to NSAIDs treatment. This study was aimed to determine the efficacy and safety of tofacitinib in refractory spondyloarthritis (SpA) patients.

Methods: A total of 147 refractory SpA patients of both genders were enrolled during the period of December 2016 to September 2018 in tofacitinib (60) and etanercept (87) group. Outcome assessment was done after six months. The dosage of tofacitinib was 10 mg/d and etanercept 50 mg subcutaneously weekly in the first month, then 2 weeks interval in the 2nd and 3rd month, then every 3 weeks interval. All patients were screened for TB by X-ray chest, TST and QuantiFERON-TB Gold test at baseline. Independent samples and paired t-tests were used to determine the efficacy.

Results: Six months follow up was completed by 32 and 50 patients of tofacitinib and etanercept groups respectively. Among 60 patients of tofacitinib group, there were 17 losses to follow up and 5 treatment failures. In the etanercept group, out of 87 patients, 27 were lost to follow up and 10 did not respond to treatment protocol. The TST was positive in 14 patients, 7 in each group but all

were QuantiFERON-TB Gold test negative. Within the group, there were significant differences (P = 0.00) in Hb, ESR, CRP, morning stiffness, PGA, BASDAI, BASMI, BASFI, ASDAS-CRP and ASDAS-ESR. No significant difference in efficacy was observed between groups. The rate of adverse events in tofacitinib versus etanercept group were; gastroenteritis (53.1% vs 6%), dyslipidemia (43.8% vs 0%), UTI (21.9% vs 0%), URTI (18.8% vs 14.7%), anaemia (12.5% vs 0%). Severe adverse events (pneumonia, cellulitis, severe UTI, severe anaemia, HEV infection) were observed in 6 patients of tofacitinib group. None developed TB.

Conclusions: At 6th month, both tofacitinib and etanercept were found effective. Infection and dyslipidemia were prevalent in the tofacitinib group.

Keywords: tofacitinib; Etanercept; Spondylarthritis; Pyrimidines; Piperidines; Bangladesh

---

ABS-101

Outcome of C-arm guided Epidural Steroid Injection in Patients with Prolapsed Lumbar Intervertebral Disc (PLID) with Radiculopathy

Md. Tamjid Ali (drtamjidali@gmail.com)[1], A K M Salek[2], Moshiur Rahman Khasru[3]

[1]*Department of Physical Medicine and Rehabilitation, Rajshahi Medical College Hospital; [2]Department of Physical Medicine and Rehabilitation, Bangabandhu Sheikh Mujib Medical University, Dhaka;[3]Department of Physical Medicine and Rehabilitation, Bangabandhu Sheikh Mujib Medical University, Dhaka*

Introduction: Prolapsed lumbar intervertebral disc (PLID) is one of the most common health problems worldwide as well as in our country and potential causes of temporary disability, morbidity and reasoning of absence at work places. The purpose of the study is to find out the outcome of C-arm guided transforaminal and caudal epidural steroid injection (TFESI & CESI) for low back pain with radiculopathy due to PLID.

Methods: A randomized clinical trial among purposely selected 54 patients (N=54) were in group A (n=26) treated with C-arm guided TFESI & CESI with conservative treatment and group B (n=28) treated with conservative treatment only. Pain was assessed in Visual analogue scale (VAS) and Disability assessed by Oswestry Disability Index (ODI). Patients were followed up at 1st week, 1st month and 3rd month.

Results: The mean age of the participants in group A and group B were 40.88 (± 8.70) and 43.00 (± 11.54) respectively. In group A, 9 (34.6%) were housewives, 4 (15.4%) were manual workers, 21 (80.8%) had three discs involvement while in group B, 10 (35.7%) were housewives, 8 (28.6%) were manual workers, 19 (67.9%) had three discs involvement where L4-5-disc involvement was most common in both groups. There was no significant statistical difference between the groups regarding VAS scores at baseline (p=0.235), 1st week (p=0.164) and 1st month (p=0.125). The VAS score significantly reduced in group A compared to group B at 3rd month (p=0.001). The ODI score significantly reduced in group A compared to group B at 1st week (p=0.034), 1st month (p=0.016) and at 3rd month (p=0.001).

Conclusion: C-arm guided TFESI & CESI provide significant improvement in pain and functional outcome of patients with radiculopathy due to PLID.

Keywords: Radiculopathy; Steroids; Intervertebral Disc; Intervertebral Disc Displacement; Injections, Epidural

Knowledge, Attitude, and Practice of Tobacco Control Law among Tobacco Retailers in Dhaka North City Corporation

Fardina Rahman Omi (fardinarahmanomi@gmail.com)[1], Palash Chandra Banik[1], Mithila Faruque[1]

[1]*Department of Noncommunicable Diseases, Bangladesh University of Health Sciences (BUHS), Dhaka, Bangladesh*

Introduction: Tobacco retailers (TR) are an integral part of tobacco control. Their compliance with the law is fundamental to triumph over the anticipated consequences. Hence, it is imperative to understand the knowledge, attitude and practice (KAP) of TR regarding tobacco control law (TCL) to strengthen tobacco control efforts. We aimed to assess the level of KAP of TCL among TR of Dhaka City.

Methods: *A* cross-sectional survey using a multistage sampling approach was conducted among 420 tobacco retailers in Dhaka North City Corporation. Data were collected using a semi-structured questionnaire, and a checklist adapted based on the GATS questionnaire and literature searches. Additionally, five key informant interviews (KII) were conducted. According to the bells curve theory, the level of knowledge, attitude and practice was defined by mean±SD. Good knowledge and practice level, as well as positive attitudes, were determined using >Mean+SD. And low knowledge level, negative attitude, and poor practice level were determined using Mean+SD.

Results: The mean age of the respondents was 35.9 (±11.5) years. Though 60% of respondents had heard the term TCL, only 14% had good knowledge of TCL and its different segments. Almost two-thirds (61%) of TR's knew that advertisement is prohibited at the point of sale. About 23% showed positive attitudes towards the TCL. Only 15% showed good practices regarding TCL and its components by observation. Education level showed a significant ($p>0.05$) association among the TR's by the Chi-square test. With the attitude and practice of TCL KII data explored that TR's impaired practice, unclarity about TCL and Tobacco industries' persuasions are the foremost causes of violation of TCL.

Conclusion: *TR's* Knowledge of TCL was minimal, the impaired practice prevailed, but the attitude towards tobacco smoking and selling is changing. Increasing the level of education among the TR's could be a game-changing initiative.

Keywords: Health Knowledge, Attitudes, Practice; Tobacco Products; Commerce

Digital Health Risk of Primary School Students: Dhaka City Perspectives

Saadia Noor (sohani0910@gmail.com)[1]

[1]*Bangladesh University of Professionals*

Introduction: Nowadays, children use electronic devices and are at extreme risk of their detriment. The study's objective was to determine the intensity of technological interaction among primary school students and digital health issues.

Methods: This is an analytic cross-sectional study using a quantitative method among grade four students. Three hundred forty students were selected by a simple random sampling method from

four schools in Dhaka city. Students using gadgets (TV, mobile phones, and tablets) for 3-4 hours, or more than four hours are defined as high users, and those using them for 1-2 hours are considered low users. Face-to-face interviews with a structured pretested questionnaire containing gadgets' physical and psychological impacts were used to collect data. Their physical tests were carried out by measuring height, weight and reviewing the vision test.

Results: The frequency of high users of TV, mobiles, and tablets is 87.7%, 94.9%, and 90%. The majority of students (67.6%) watch cartoons, 49.7% watch music videos, and 57.1% play online games. High mobile users have a positive relationship with watering and redness of eyes ('p' value= 0.04). Other complaints are myopia (11.5%), headaches (31.2%), backaches (8.8%), indigestion (9.4%) and hearing problems (2.1%). When gadgets are taken away, high tablet users show more psychological tantrums such as anger or sadness ('p' value= 0.014). High mobile users feel sleepy in the class ('p' value= 0.02). High TV users watch TV during eating ('p' value= 0.01).

Conclusion: Children are the future generation of our country. So, there is a prime need to look into this problem and protect our children from the threat of electronic gadget use. The authorities and lawmakers should introduce the technology and use it in the students' educational curriculum.

Keywords: Electronics, Cell Phone; Social Responsibility; Cross-Sectional Studies

ABS-025

GIS-based Exploration of Obesogenic Food Environment around Educational Institutions in Dhaka city

Sayma Islam Alin (saymaislam9215@gmail)[1], Mahfuza Mubarak[1], Md. Sajan Bishwas[1]

[1]*Department of Public Health and Informatics, Jahangirnagar University*

Introduction: The availability, accessibility, and marketing of ready-to-eat, highly processed, sugary foods, drinks, etc., are examples of an obesogenic food environment. Students spend a large amount of time in and around schools and colleges, and therefore, the school food environment plays a crucial role in their food consumption and eating habits development. This study aimed to explore the density of fast-food outlets according to their proximity to educational institutions and investigate food advertisements in public spaces.

Methods: The study design is an exploratory cross-sectional study. Geographic Information System (GIS) [ArcGIS] was used to access the locations of fast-food outlets within a 100 m and 300 m network buffer around 35 educational institutions. A well-structured observation checklist was used to explore the advertisement of fast-food outlets around educational institutions.

Results: A total of 842 fast-food outlets within the 300m buffer zone were identified and mapped as cluster points. Among 35 educational institutes, 21 institutes (60%) had about 1-25 fast-food outlets within 300 m; whereas 12(34.3%) had 26-50 fast-food outlets, 2(5.7%) had 50-75 fast-food outlets within 300 m, respectively. The majority of these fast-food shops (45.8%) are located near the main entrance of schools/colleges. 56.4% of outlets promote advertisements around institutes, with billboards (79.7%) and banners (16%) the most popular ways. Additionally, 99.5% of the advertisements do not contain any nutritional information.

Conclusion: There was a high density of fast-food outlets in easy walking distance of educational establishments, with the majority offering high fatty foods. Public health policymakers need to focus on the regulation to prevent the obesity problem in Bangladesh.

ABS-027

Assessment of Depression and Anxiety Among Admitted Patients in A Cardiology Department: A Cross-Sectional Hospital-Based Study in A Bangladesh Population During COVID-19

Mohammad Ashraful Amin mohammad.amin02@northsouth.edu)[1], Mohsin Ahmed[2], Sabrina Nahin[3], Nadira Sultana Kakoly[1]

[1]*Department of Public Health, North South University, Dhaka, Bangladesh;* [2]*Department of Cardiology, National Institute of Cardiovascular Diseases (NICVD), Dhaka, Bangladesh;* [3]*Department of Physiology, Green Life Medical College Hospital, Dhaka, Bangladesh*

Introduction: Depression and anxiety problems are extremely common and chronic problems among patients with heart disease. Both depression and anxiety have a substantial role in the evolution of cardiovascular disease and are recognized as independent risk factors of it.

Methods: We explored the prevalence of depression and anxiety among cardiac patients, and analyzed the relationship between cardiovascular disease risk factors associated with depression and anxiety among patients admitted during the COVID-19 pandemic.

Results: The study comprised a total of 384 participants with a confirmed cardiac diagnosis. We conducted a cross-sectional study from 5 March-27 June 2021. The hospital-based researcher focused on patients who were sequentially admitted with a new or existing cardiac diagnosis to one of Dhaka's two main hospitals. The Hospital Anxiety and Depression Scale (HADS) was used to screen all individuals for depression and anxiety. The great majority of the samples (88.2%) were male, and the age categories of 51-60 years were the most common (32.81%). 96.6% were married, 30% had no income, 36.6% had only completed classes 1-5, and (46.61%) resided in rural areas. Approximately 36% of the participants were former smokers, whereas 31% were current smokers. (46.6%) STEMI cases and chronic illnesses were absent in 59%. In total, 27% and 24% of patients had borderline abnormal and abnormal anxiety, while 56% had clinical depression. Age, place of residence, profession, monthly income, and chronic disease were all important predictors of anxiety. In case of depression, multiple logistic regression revealed only gender as a significant covariate.

Conclusion: We observed that this admitted group of cardiac patients had a good degree of depression and anxiety. The need for developing a quick screening approach in hospitals that deal with cardiovascular inpatients to identify those who need extra care should be evaluated and counseling services provided on a regular basis.

Keywords: Anxiety, SARS-CoV-2; Psychiatric Status Rating Scales; COVID-19; Depression; Cross-Sectional Studies

Vitamin D Status in Patients with Mental Disorders: A Cross-Sectional Study

Sultana Algin (algin28@gmail.com)[1], Rahelee Zinnat[2], Ahir Fahian[3], Amin Ahmad Mostafa Qudir[3]

[1]Department of Psychiatry, Bangabandhu Sheikh Mujib Medical University (BSMMU); [2]Department of Biochemistry & Cell Biology, Bangladesh University of Health Science (BUHS); [3]Ayushman Foundation

Introduction: Vitamin D deficiency may contribute to the etiology of mental disorders by affecting the pathway of serotonin and catecholamine synthesis. Active Vitamin D enhances glutamate and glutamine metabolism in neurons. Substantial research shows a relationship between mental illness and Vitamin D deficiency, particularly in MDD and Schizophrenia but there is a scarcity of enough data with obsessive-compulsive disorders. The present study has been aimed to see the status of vitamin D in different groups of mental disorders.

Methods: It was a cross-sectional descriptive study carried out from June '20 to Nov '21.Out of 220 patients who took telemedicine sessions, 205 were responded and included in the study. According to Clinical Practice Guidelines from the US Endocrine Society, Vitamin D categorical definitions were followed.

Results: Among 205 study subjects 67.3 % were female and 32.7% were male and their mean age was 34.55 ±15.2. Among the mental disorders, OCD patients were in the highest number 40.5%, followed by MDD 17.36%, BMD 12.7%, Schizophrenia10.7%, Combined (BMD+ OCD) 8.3%, Others 10.2%. Age and Habitat of the patients had a significant association with Vitamin D severity level (p=0.010), (p=0.040) respectively. The mean Vitamin D level of the study subjects was 19.97±11.8. Among the study subjects, 87.80 % had Vitamin D deficiency. The severity of Vitamin D status was; deficiency (<20ng/ml) 61.95%, insufficiency (21-30ng/ml) 25.85%. The mean vitamin D level among OCD (17.93±9.6) and schizophrenia (16.35±9.8) was much closer to each other. Vitamin D level was found to be significantly different among the groups of mental disorders i.e between OCD vs MDD (p=0.021), BMD vs OCD (p=0.021).

Conclusion: Vitamin D deficiency is an under-diagnosed entity, especially in treating patients with psychiatric disorders. Hopefully, the patient would be benefited if properly screened and prescribed Vitamin D as augmentation with psychotropic medicine.

Keywords: Cross-Sectional Studies; Mental Disorders; Vitamin D; Vitamin D Deficiency

Prevalence of Risk Factors of Non-Communicable Diseases Among Bangladeshi Males and Females Aged 20-59 Years: Evidence from A Nationwide Survey in Bangladesh

Md. Mokbul Hossain (mokbul.hossain@bracu.ac.bd)[1], Abhijeet Roy[1], Abu Abdullah Mohammad Hanif[1], Showkat Ali Khan[1], Abu Ahmed Shamim[1], Mehedi Hasan[1], Moyazzam Hossaine[1], Mohammad Aman Ullah[2], Samir Kanti Sarker[2] SM Mustafizur Rahman[2], Dipak Kumar Mitra[3], Fahmida Akter[1], Rina Rani Paul[1], Malay Kanti Mridha[1]

[1]Centre for Non-communicable Diseases and Nutrition (CNCDN), BRAC James P Grant School of Public Health, BRAC University, Dhaka, Bangladesh;[2]National Nutrition Services (NNS), Directorate General of Health Services; [3]North-South University

Introduction: Non-communicable diseases (NCDs) are emerging as a health priority in Bangladesh. The primary prevention of NCDs is associated with the prevention of their risk factors. We aimed to identify the prevalence and clustering of the major NCD risk factors among Bangladeshi people aged 20-59 years using the data from a nationally representative survey.

Methods: In this cross-sectional study we collected data from 82 randomly selected clusters (57 rural, 15 non-slum urbans, and 10 slums) from all administrative divisions of Bangladesh. Weighted prevalence of risk factors was estimated. Multivariable logistic regression analysis was done to identify the factors associated with having multiple risk factors. We analyzed data from 9822 participants.

Result: The prevalence of tobacco uses in any form, insufficient physical activity, inadequate fruits, and vegetable consumption, overweight and obesity, and central obesity was about 38%, 14%, 87%, 42% and 36%, respectively. Besides, 22%, and 5% of the participants reported to have self-reported hypertension and diabetes, respectively. Almost 20% of the men and 28% of the women had at least three risk factors. With a cutoff of ≥3 risk factors, clustering of risk factors was associated with age (men: 50-59 years AOR:3.62, 95%CI: 2.90-4.52 and women: 50-59 years AOR: 3.91, 95%CI: 3.13-4.88), place of residence (men: non-slum urban: AOR: 2.57, 95%CI: 2.14-3.09, slum: AOR: 1.80, 95%CI: 1.48-2.17 and women: non-slum urban: AOR: 2.53, 95%CI: 2.10-3.06, slum: AOR: 1.89, 95%CI: 1.56-2.29), education (men: complete secondary or above: AOR: 2.57, 95%CI: 2.11-3.14 and women: complete secondary or above: AOR:1,54, 95%CI: 1.23-1.92), and wealth status (men: richest: 2.02, 95%CI: 1.64-2.49 and women: richest: AOR: 1.72, 95%CI: 1.39-2.12).

Conclusion: The prevalence of the major NCD risk factors is high among Bangladeshi people aged 20-59 years. A large proportion of people also had multiple risk factors. Population-based programs targeting specific groups with multi-sectoral approaches need to be implemented urgently.

Keywords: Noncommunicable Diseases; Risk factors; Hypertension; Prevalence; Bangladesh

---

ABS-028

Psychiatric Disorders Among Children and Adolescents With Headache: Findings From A Hospital-Based Study in Bangladesh

Sifat E Syed (sifat.syed@yahoo.com)[1], MSI Mullick[1], Monirul Islam[1]

[1]*Department of Psychiatry, Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka*

Introduction: Headache in children and adolescents is associated with a number of psychiatric disorders which predict poor outcomes. For better management of pediatric headaches, taking into account psychiatric co-morbidity is crucial. The objective of the study was to find out the types of psychiatric disorders and their correlates among children and adolescents with headache

Methods: The descriptive type of cross-sectional study was conducted in the Out-Patient Departments of Paediatric Neurology, Bangabandhu Sheikh Mujib Medical University (BSMMU), and National Institute of Neuro-Sciences (NINS), Dhaka, from July 2019 to March 2020. Total 151 samples were taken without randomization. International Classification of Headache Disorders

(ICHD-3) was used to identify the type of headache and validated Bangla version of Development and Well-being Assessment (DAWBA) - parent version was applied to generate a DSM-IV diagnosis.

Results: Tension-type headache was the commonest cause of headache (62.9%), followed by migraine (16.6%). Psychiatric co-morbidity was found among 39.7% of respondents, among them, 13.2% had more than one psychiatric diagnosis. Depressive disorder was found in 8.6% and Separation anxiety disorder in 4.6% of individuals. Children who had frequent headaches were suffering more from psychiatric co-morbidity and the difference was significant (p<0.05). Logistic regression showed that a higher frequency of headaches is a predictor of having psychiatric comorbidity (OR>1.0).

Conclusion: This research showed that psychiatric disorders are highly prevalent among children and adolescents with primary headaches. A pediatric-psychiatric liaison is essential for the comprehensive management of headaches among children and adolescents.

Theme:
HEALTH SYSTEMS AND NCDS

The Availability of Essential Medicines for Major Non-Communicable Diseases in The Health Facilities of Bangladesh

Tanjeena Tahrin Islam (islam.tanjeena@gmail.com), Anisuddin Ahmed, Abu Sayeed Shuvo, Fariya Rahman, Sahar Reza, Ema Akter, Abu Bakkar Siddique, Anika Tasneem Hossain, Ahmed Ehsanur Rahman

[1]*International Centre for Diarrhoeal Disease search, Bangladesh*

Introduction: Non-communicable diseases are right now national burdens for a developing country like Bangladesh. One of the effective ways to reduce the mortality and morbidity of these diseases is to ensure the availability of essential medicines in the facilities offering treatments in Bangladesh. The paper explores the availability of essential medicines for three major non-communicable diseases (EM-NCD), that is, diabetes, cardiovascular diseases (CVD), and chronic obstructive pulmonary diseases (COPD) using the data from the Bangladesh Health Facility Survey 2014 and 2017.

Method: The facilities offering treatment for each of the three major NCDs were included in the analysis of EM-NCD for each type of disease. Distributions of the presence of valid EM-NCD during a survey for all mentioned diseases and comparisons of EM-NCD for diabetes and CVD were performed using frequency distribution analysis.

Results: Except Metformin, essential medicines for diabetes (EM-Diabetes) decreased during 2017. Metformin was the highest available EM-Diabetes whose availability changed from 25.9% to 38.7% over time. Among the essential medicines for cardiovascular diseases (EM-CVD), facilities containing ACE inhibitors, thiazide and beta-blockers decreased while facilities containing calcium channel blockers, aspirin and oxygen increased during 2017. Oxygen was the highest available EM-CVD whose availability increased from 46.3% to 51%. The highest available EM-COPD during 2017 was salbutamol tablets or inhalers (77.7%). Facilities containing all the EM-Diabetes decreased from 7.7% to 3.6% and containing all the EM-CVD decreased from 4.7% to 3.8% over time. Facilities containing no EM-Diabetes also decreased from 66.4% to 57.3% and containing no EM-CVD decreased from 38.8% to 36.3% over time. 14.9% facilities contained no EM-COPD while only 2% facilities contained all EM-COPD during 2017.

Conclusion: The findings of the study can be utilized to identify the gaps between the availability of EM-NCD.

Keywords: Noncommunicable Diseases; Health Facilities; Drugs, Essential, Public Sector

Comparison of NCD Corner Service Delivery at Hajigonj Upazilla Health Complex: Before and After COVID 19 Pandemic and Post Vaccination

Iffat Rubaiya Nasir (irubaiya@gmail.com)[1], Fariha Haseen[2], S. M. Soab Ahmed Chistee[3], Azadul Haque[3]

[1]*Hatila Poschim Union Health and Family Welfare Cencer, Hajigonj ,Chandpur;* [2]*Public Health and Informatics, Bangabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh,* [3]*Upazilla Health and Family Planning Officer, Hajigonj Upazilla Health Complex, Hajigonj, Chandpur*

Introduction: Unlike other Health Complexes, Hajiganaj Upazilla Health Complex delivers NCD services through dedicated NCD corners. The aim of this study is to compare the trends in NCD service delivery before pandemic with pandemic period and post-vaccination period.

Method: This is a descriptive cross-sectional study, where we reviewed the data that's being registered in the NCD corner registry. Data was collected from the monthly report of NCD corner. This data was collected by the medical officer of NCD corner of Upazilla Health complex. We compared the data of February 2020 before starting the pandemic, with August 2020 during a pandemic, and June 2021 after vaccination started.

Result: In February 2020, a total of 193 patients received service from NCD corner. Of them 25.91% were male and 58.55% were female. Age range of the patients was below 25 to above 64 yrs, 27.97% were hypertensive, 40.93% were diabetic, 13.26% were CVD, 7.25% were COPD and 10.36% were asthma patients. No CVA or Cancer patient received any service from NCD corner in that month. In August at the time of a pandemic the number of patients receiving service from NCD corner was 25, male 28%, female 72%. Age range of the patients were 35 to above 64 years, 48% were hypertensive patients and 52% were diabetic patients. In June 2021 when mass vaccination started 227 patients received service from NCD corner. Among them, 22.91% were male and female patients were 77.09%. The age range of the patients was below 25 to above 64 years, 40.96% were hypertensive,7.04% were CVD,0 .441% were CVA, 40.53% were diabetic, 7.49% were COPD and 3.52% were asthmatic patients.

Conclusion: From this study, we found that NCD service delivery during pandemic was hampered during the COVID-19 pandemic at Hajigonj Upazilla Health complex and improved after vaccination started.

Keywords: Noncommunicable Diseases; COVID-19; SARS-CoV-2; Vaccination, Influenza A Virus, H1N1 Subtype

---

Technology Readiness for Non-Communicable Diseases Management Among the Public and Private Primary Health Care Providers: A Qualitative Exploration

Fahmida Akter[1], Abu Abdullah Mohammad Hanif[1], Md. Mokbul Hossain[1], Mehedi Hasan[1], Abhijeet Roy[1], Ali Ahsan[1,] Md. Ariful Alam[2], Mithila Faruque[3,] AHM Enayet Hossain[4], Abdul Alim[4], Syed Nasir Uddin[5], Afsana Karim[6], Brian Oldenberg[7], Ian Goon[8], Malabika Sarker[1], John C Chambers[8], Malay Kanti Mridha (malay.mridha@bracu.ac.bd)[1]

[1]Centre for Non-communicable Diseases and Nutrition (CNCDN), BRAC James P Grant School of Public Health, BRAC University; [2]BRAC; [3]Bangladesh University of Health Science, [4]Ministry of Health and Family Welfare, Bangladesh; [5]National Institute of Cardiovascular Diseases; [6]Bangladesh Institute of Research and Rehabilitation in Diabetes, Endocrine and Metabolic Disorders; [7]University of Melbourne; [8]Global Health Research Unit, Imperial College London.

Introduction: A strong primary health care (PHC) system with a digital platform is essential for delivering effective prevention and control of non-communicable diseases (NCDs). However, Bangladesh is at an early stage in the development of digital platforms for health care. This paper aimed to assess the technology readiness of the primary health care (PHC) providing (or supervising) NCD services in the government and non-government settings in rural Bangladesh.

Methods: We conducted 37 in-depth interviews (IDIs) and 8 key informant interviews (KIIs) among PHC providers from government and non-government health facilities of Parbatipur and

Birampur sub-districts of Dinajpur, Bangladesh. Thematic analysis was done and findings were summarized by major themes.

Results: Majority (36 out of 45) of the respondents from both Parbatipur and Birampur reported that they were using at least one digital device to manage NCDs. Most commonly used digital devices were android phone, laptop, tablet computer, computer, digital weighing machine, glucometers, digital BP machines. They were using these devices for the assessment of patients, documentation, communication, and monitoring. The respondents described advantages, disadvantages and challenges experienced during using digital devices. All respondents expressed their willingness to use various digital devices for NCD management hoping to provide fast and quality services to the patients. Regarding capacity building, only 19 respondents mentioned that they received training on digital devices. Most of (n=14) of the training was organized by the UHC (Upazila Health Complex) of Parbatipur and Birampur. Almost all respondents thought that they need further training on different digital devices for managing NCDs more efficiently and to increase coverage of services.

Conclusions: Our findings revealed that, while all respondents are willing to employ technology to manage NCDs at the primary health facility level, there are gaps in terms of capacity and technology readiness. We expect that these results will prompt policymakers to take required steps to improve NCD management at the PHC level in Bangladesh.

Keywords: Noncommunicable diseases; Technology; Health Personnel; Public Sector; Private Sector

---

ABS-038

Comparison of NCD Corner Service Delivery at Hajigonj Upazilla Health Complex: Before and After Covid 19 Pandemic and Post Vaccination

Iffat Rubaiya Nasir (irubaiya@gmail.com)[1], Fariha Haseen[2], S. M. Soab Ahmed Chistee[3]; Azadul Haque[3]

[1]Hatila Poschim Union Health and Family Welfare Cencer, Hajigonj ,Chandpur; [2]Department of Public Health and Informatics, Bangabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh, [3]Upazilla Health and Family Planning Officer, Hajigonj Upazilla Health Complex, Hajigonj, Chandpur

Introduction: Unlike other Health Complexes, Hajiganaj Upazilla Health Complex delivers NCD services through dedicated NCD corner. The aim of this study is to compare the trends in NCD service delivery before pandemic with pandemic period and post vaccination period.

Method: This is a descriptive cross-sectional study, where we reviewed the data that's being registered in the NCD corner registry. Data was collected from the monthly report of NCD corner. This data was collected by the medical officer of NCD corner of Upazilla Health complex. We compared the data of February 2020 before starting pandemic, with August 2020 during pandemic, and June 2021 after vaccination started.

Result: In February 2020, 193 patients received service from NCD corner. Of them 25.91% were male and 58.55% were female. Age range of the patients were below 25 to above 64 years, 27.97% were hypertensive, 40.93% were diabetic, 13.26% were CVD, 7.25% were COPD and 10.36% were asthma patients. No CVA or Cancer patient received any service from NCD corner in that month. In August at the time of the pandemic the number of patients receiving service from the NCD corner was 25, male 28%, female 72%. Age range of the patients were 35 to above 64 years, 48% were hypertensive patients and 52% were diabetic patients. In June 2021 when mass

vaccination started 227 patients received service from NCD corner. Among them 22.91% were male and 77.09% female patients. The age range of the patients were below 25 to above 64 years, 40.96% were hypertensive,7.04% were CVD, 0 .441% were CVA, 40.53% were diabetic, 7.49% were COPD and 3.52% were asthmatic patients.

Conclusion: Number of patients received service from NCD corner decreased during pandemic. All the time number female patients were more than male. Compared to other NCD, diabetic and hypertensive patients were more and no cancer patient found to receive service from NCD corner. From this study we found that NCD service delivery during pandemic were hampered during COVID-19 pandemic at Hajigonj Upazilla Health complex and improved after vaccination started.

Keywords: Noncommunicable Diseases; COVID-19; Vaccination; SARS-CoV-2; Influenza A Virus, H1N1 Subtype

---

ABS-049

Training and Digital Care Coordination for the Management of Hypertension and Diabetes: A Proof-of-Concept Study

Rina Rani Paul (rinarani.paul@bracu.ac.bd)[1], Aysha Anan[1], Md. Mokbul Hossain[1], Abu Abdullah Mohammad Hanif[1], Mehedi Hasan[1], Md. Ariful Alam[2], Mithila Faruque[3], AHM Enayet Hossain[4], Abdul Alim[4], Syed Nasir Uddin[5], Afsana Karim[6], Brian Oldenberg[7], Ian Goon[8], Malabika Sarker[1], John C Chambers[8], Malay Kanti Mridha[1]

[1]Centre for Non-communicable Diseases and Nutrition (CNCDN), BRAC James P Grant School of Public Health, BRAC University; [2]BRAC; [3]Bangladesh University of Health Science, [4]Ministry of Health and Family Welfare, Bangladesh; [5]National Institute of Cardiovascular Diseases; [6]Bangladesh Institute of Research and Rehabilitation in Diabetes, Endocrine and Metabolic Disorders; [7]University of Melbourne; [8]Global Health Research Unit, Imperial College London.

Introduction: Bangladesh developed a national protocol and service delivery plan for the management of hypertension and type 2 diabetes (T2D) using the cardiovascular diseases (CVD) risk-based approach in primary health care. We implemented a proof-of-concept study to determine the effectiveness of training and digital care coordination for NCD service delivery following the national protocol and service delivery plan.

Method: We developed a digital care coordination system and replicated the government primary health care system of NCD care by deploying staff and setting up three community health centers (CHC like community clinics) and one NCD centers (like NCD corners) in Parbatipur. We trained primary health care providers on the national protocol. We registered participants 40 years and older and delivered hypertension and T2D services. We analyzed data using STATA 17.0.

Result: Between September 2021 to December 2021, we registered 2159 participants at home and counseled 1845 (85% of registered) on at least one behavioral risk factor of NCDs. A total of 1935 (90% of registered) participants were screened for hypertension and diabetes at the CHC, and 785 (41% of screened) were identified with hypertension and/or diabetes and referred to the NCD center. Among them 621 participants (79% of referred) showed up at the NCD center and 600 were diagnosed with hypertension and/or diabetes (388 with hypertension, 91 with diabetes and 121 with both hypertension and diabetes). More than 60% of those diagnosed with hypertension and/or diabetes returned for a follow up visit. Among them, 78% of hypertensive and

96

70% of diabetic patients reported regular medication intake, and the blood pressure control rate was 84% for hypertensive patients and blood sugar control rate was 33% for diabetic patients.

Conclusion: Provision of NCD care following the national protocol on hypertension and diabetes and use of a digital care coordination system through adequately trained PHC workers can lead to identification, treatment adherence, and control of hypertension and T2D. NCD care using a digital care coordination system should be implemented all over the country.

Keywords: Diabetes Mellitus; Hypertension

Service Availability and Readiness of Health Facilities for Non-Communicable Disease in Two Sub-Districts of Bangladesh

Tanmoy Sarker (tanmoy.sarker@bracu.ac.bd)[1], Md. Mokbul Hossain[1], Abhijeet Roy[1], Rina Rani Paul[1], Mehedi Hasan[2], Malabika Sarker[2], Ian Goon[3], Brian Oldenberg[4], John C Chambers[3], Malay Kanti Mridha[1]

[1]Centre for NCD and Nutrition, BRAC James P Grant School of Public Health, BRAC University; [2]Center for Science for Implementation and Scaling Up, BRAC James P Grant School of Public Health, BRAC University; [3]Imperial College London; [4]Melbourne University

Introduction: Bangladesh is now undergoing a demographic change, with an increase in the burden of Non-communicable Diseases (NCDs). NCDs currently account for around 64% of the disease burden and 67% of yearly mortality in Bangladesh. Therefore, it is critical to examine the primary health care system's preparation for preventing and treating NCDs, as it serves the majority of Bangladesh's population. In this study, we aimed to assess the service availability and readiness of the health facilities in Parbatipur and Birampur sub-districts in northern Bangladesh for NCDs.

Methods: We conducted a cross-sectional study between July 2020-September 2020 using the World Health Organization recommended Service Availability and Readiness Assessment tool. A total of 100 health facilities were assessed (64 from Parbatipur and 36 from Birampur).

Results: Overall, 58.5% of physicians were available against the total positions, whereas 80.2% of nurses/midwives were available. Only 32% of the health facilities had at least four out of six basic amenities (emergency transport, internet, communication, sanitation, water and power), 29.5% in Parbatipur and 36.1% in Birampur. Overall, 77% of the health facilities had at least four tracer items (stethoscope, thermometer, blood pressure apparatuses, and adult scale). The availability of counseling services for NCD risk factors and self-care was highest for diabetes (95.3%) and lowest for cancer (34.0%). However, we found no health facilities were using WHO recommended 5A-5R approach for counseling. Forty-eight percent of facilities had the capacity for performing random blood sugar. For the management of hypertension and type 2 diabetes, only 24% of facilities in Parbatipur and Birampur adhered to the national guidelines. Electrocardiographs was available in 9.5% of facilities in Parbatipur. Overall, only 10% of facilities of both sub-districts performed screening and referral for cancer and mental health disorders.

Conclusion: The health facilities in Parbatipur and Birampur suffered from a shortage of all kinds of facilities required to diagnose and treat NCDs. It is essential to ensure trained staff, appropriate

guidelines, required instruments and medicine for the diagnosis and treatment of major NCDs in the primary health care facilities in Bangladesh.

Keywords: Noncommunicable Diseases; Health Facilities; Health Services Accessibility; Bangladesh

Access to Care for Acute Vascular Events at The Rural Area of Bangladesh: A Qualitative Study

Md. Khaledul Hasan (khaledul.hasan@icddrb.org)[1], Shirmin Bintay Kader[2], Mahmudur Rahman Khan[3], Muhammad Ashique Haider Chowdhury[1,4,] Md Alfazal Khan[1,] Nafisa Lira Huq[1], Aliya Naheed[1], and Shyfuddin Ahmed[1,5]

[1]Initiative for Non-communicable Diseases, Health Systems and Population Studies Division, International Center for Diarrheal Disease Research, Bangladesh (icddr,b), Dhaka, Bangladesh; [2]University of Saskatchewan, Saskatoon, SK, Canada; [3]Women & Girls Empowerment Program, CARE Bangladesh; [4]Department of Public Health Sciences, Biological Science Division, The University of Chicago, Chicago, IL, USA; [5]Robert Stempel College of Public Health and Social Work, Florida International University, Miami, Florida, USA

Introduction: Acute vascular events (AVE) including myocardial infarction (MI) and stroke are the major causes of global deaths and disabilities including in Bangladesh. We explored barriers to care for AVE in a rural community in Bangladesh.

Methods: We conducted in-depth interviews (IDI) with the caregivers of patients with a past event of a MI or stroke in a rural sub-district in Matlab, Chandpur, Bangladesh. Key informant interviews (KII) were conducted with healthcare providers of primary health facilities. IDIs and KIIs were conducted following separate guidelines, audio-recorded, and transcribed into a script in Bangla for a thematic analysis to explore barriers to AVE care from both of the patients' and providers' perspectives.

Result: Between June and August 2016, eight IDIs were conducted among caregivers of patients with MI (N=4) and stroke (N=4). Most participants reported visiting the UHC nearest to their homes as the first medical contact after the AVE occurred. All participants were referred to a secondary or tertiary hospital after initial assessment, at the UHC and could not offer a transportation facility when being referred to a higher-level facility. All participants adhered to the referral, but a few (N=5) reported to have financial hardship as a barrier to seeking care at a higher facility and adhering to medication and follow-up visits. Six KIIs conducted with the healthcare providers reported that the UHCs did not have enough instruments, trained physicians and other human resources to support diagnosis and management of AVE at the UHCs.

Conclusion: UHC remains the first point of care for an AVE in the rural communities in Bangladesh, but most cases are referred to a higher facility due to lack of resources for providing emergency care for AVE at the UHC. Strengthening UHCs for providing primary management of AVE may help to prevent deaths and disabilities due to AVE in rural Bangladesh.

Keywords: Health Services Accessibility; Rural Population; Bangladesh

Comparative Status of Unmet Supportive Care Needs Among Breast Cancer Patients: Public Vs Private Settings in Bangladesh

Sujana Haque Chawdhury (suzanahaque020@gmail.com)[1], Bilkis Banu[1], Nasrin Akter[1], Sarder Mahmud Hossain[1]

[1]Northern University Bangladesh

Introduction: Breast cancer patients and survivors go through a series of unmet supportive care needs in their survivorship. To recognize and compare the role of both public and private cancer treatment center upon the arising unmet supportive care needs of breast cancer patients in Bangladesh was the aim of the study.

Methods: A cross sectional study among 138 breast cancer patients; conveniently selected from two public and two private cancer institutes. Face to face interview for data collection and medical record review for checklist was done. Unmet needs have been determined by supportive care needs survey short form 34 (SCNS SF-34) scale. Independent t-test and binary logistic regression were performed.

Result: In this present study 77 and 61 breast cancer patients were enrolled from public and private cancer treatment centers respectively. Study indicated Mean (±SD) age was 40.50 (±10.55) and the majority were married, housewives, have at least two children, got no educational qualification (Illiterate), and lived in a nuclear family. Breast cancer patient's disease profile shows that more than half respondents were diagnosed with invasive cancer (79, 57.2%) and 100% study respondents received chemotherapy (CTx) as their initial treatment management. Surprisingly independent t- test reveals that, unmet need in health system & information, patient care support and sexuality was significantly (p= <0.01) higher among breast cancer patients of private cancer treatment centers compared to public canters.

Conclusion: Study also revealed that sexuality needs domain as a significant predictor in private cancer treatment centers for unmet need compared to public. Individuals unmet need assessment should be a part of every treatment protocol of breast cancer for a better treatment outcome.

Keywords: Breast Neoplasms; Health Services Needs and Demand; Bangladesh

Impact of the COVID-19 Pandemic on Cardiology Services in the 2nd Year at a Tertiary Cardiac Center in Dhaka

F Aaysha Cader[1], Ishmum Z. Chowdhury[1], M. Maksumul Haq[1], Mashhud Zia Chowdhury[1], Saidur Rahman Khan[1]

[1]Ibrahim Cardiac Hospital & Research Institute, Dhaka, Bangladesh

Introduction: There is little data on the impact of the COVID-19 pandemic on cardiology services and catheterization laboratory volumes during the second year of the pandemic, particularly considering the delta variant, which had profound effects in the region during the second quarter (Q2) of 2021. We aimed to assess this impact from the perspective of a tertiary cardiac center in Dhaka, Bangladesh.

Methods: Data on patient visits, admissions, procedures and catheterization volumes were collected for January to October 2020 and 2021 via hospital electronic records. Comparisons for each corresponding month were made between 2021 and 2020. The difference was expressed as a percentage (%Δ). Data for each quarter (Q1 to Q3) were compared using paired t-test. $P < 0.05$ was considered significant.

Results: Overall, there was a significant increase in cardiology inpatient admissions (%Δ 45.54%; p=0.04), outpatient procedures (%Δ 47.39%; p=0.002), total cath lab procedures (%Δ 43.24; p= 0.013) and permanent pacing (%Δ 52.46%; p=0.009) in 2021 as compared with 2020. ER visits increased by 11.96% overall in 2021, but not significantly (p=0.7). As compared with Q1, admissions and cath lab volumes declined in Q2 (coinciding with the delta variant wave), but picked up in Q3, with continued rise. Despite this Q2 decline in 2021, total admissions (p=0.036), outpatient visits (p=0.024) and outpatient procedures (p=0.046) were significantly elevated in comparison to Q2 in 2020. Compared to Q2 of 2020, cath lab volumes were also elevated numerically (p=0.055) in 2021, with graphical trends showing increased volumes in Q3.

Conclusion: Cardiology services had reached almost pre-pandemic levels in January and February 2021. Although numbers declined during Q2, coinciding with the delta variant COVID-19 surge, they were still higher than corresponding months in the preceding year, indicative of an encouraging adaptation of the healthcare systems to care delivery during the prevailing pandemic.

Keywords: Pandemics; COVID-19; Cardiology; SARS-CoV-2; Bangladesh

Factors of retention of graduate pharmacists and suitability of diploma pharmacists as Pharmacists-in-charge in Model Pharmacies in Bangladesh: A mixed-method study

Nantu Chakma (nantu@icddrb.org)[1], Sunjida Binta Ali[1], Md. Saimul Islam[1], Tanisha Momtaz[2], Shyfuddin Ahmed[1], Zaheer-Ud-Din Babar[3], Aliya Naheed[1]

[1]International Centre for Diarrhoeal Disease Research, Bangladesh (icddr,b); [2]Brac University, Bangladesh; [3]Departments of Pharmacy, University of Huddersfield, United Kingdom

Introduction: The Directorate General of Drug Administration (DGDA) has accredited Model Pharmacies (MP) in Bangladesh for improving the quality of pharmacy services. We explored the barriers and motivation of retention of qualified pharmacists in MPs.

Method: A list of 278 MPs was collected from the DGDA and 50% of all MPs were visited in thirteen districts where at least 4 model pharmacies were inaugurated by 2020. In depth interviews were conducted with nine pharmacists with a bachelor degree in pharmacy (Grade A) and six pharmacists who had a diploma in pharmacy (Grade B). Key informant interviews were conducted with nine stakeholders.

Results: Between February and March 2021, 128 MPs were visited, 126 were functional (98%). An in-charge with a bachelor degree in pharmacy (Grade A) was found in 22%, with a diploma in pharmacy (Grade B) in 8%, with 3 months training in pharmacy (Grade C) in 34% MPs, 49% has an in-charge with no pharmacy training. A Grade A pharmacist was present in 60%, absent in 17%

and was not deployed in 23% MPs. Grade A pharmacists were not satisfied with their positions, and the motivational factors for continuation in a MP included learning scopes, good working environment, and preferable job location, while low salary, low social status, poor working environment, long working hours, and lack of respect were reported to be factors against motivation to continue in the position. While the majority of the Grade B pharmacists expressed satisfaction with the job, a few reported dissatisfactions about the low value in the professional society due to their limited knowledge and skills in pharmacy practices. The stakeholders recommended developing a salary structure and other benefits for retention of Grade A pharmacists in MPs.

Conclusion: A large proportion of the model pharmacies are run by staff other than the qualified graduate pharmacists. Improvements of salary structure, raising social value and building community awareness about good pharmacy practice would support retention of Grade A pharmacists in MPs in Bangladesh.

Keywords: Pharmacies; Pharmacists; Attitude of Health Personnel; Bangladesh.

Health Seeking Behavior and Practice of Diabetic Subjects in Bangladesh: A Nationwide Study

Mithila Faruque[1], Sharmin Hossain (shormybd@yahoo.com)[2], Palash Chandra Banik[1], Suhana Sulatana[2], Abdul Alim3, Liaquat Ali[1]

[1]Department of Noncommunicable Diseases, Bangladesh University of Health Sciences; [2]Department of Health Promotion & Health Education, Bangladesh University of Health Sciences; [3]Noncommunicable Disease Control Program, DGHS, Mohakhali

Introduction: Health-seeking behavior is the cornerstone of diabetes control and, as a result, reduces the incidence of the complications. Effective use of health care services is essential to delay or prevent complications and reduce the burden of diabetes. The current study was done to explore the health-seeking behavior and practice among patients diagnosed with diabetes mellitus (DM).

Methods: This nationwide community-based cross-sectional study was carried out among 1,811 diabetic patients (aged ≥18 years) in eight divisional urban and rural area of Bangladesh. A multistage clustered sampling method was used to recruit the study area and participants were selected conveniently from the community. A pretested interviewer-administered questionnaire was used to collect information from the participants by face-to-face interview.

Results: The mean (±SD) duration of diabetes of the participants was 5.6±4.9 years. Majority of them (32.8%) belonged to 46-55 years. Majority of the diabetic patients (82.2%) seek treatment from diabetic health centers which is more in urban areas (85.4%) than rural areas (77%). Only 3% of them visited government hospitals for treatment purposes. Main factors behind choosing these facilities were better quality treatment (51.6%), cheap rate (30.6%), nearby and easy access (10.2%) etc. Majority of them (93.1%) both in urban and rural areas do not have their own glucometer. In rural areas, one-fifth of patients (22.7%) go to pharmacies for blood glucose measurement. The median of the yearly follow up visit to doctor was at 2 months interval and blood glucose monitoring was at 1 month interval. The yearly frequency of visits to the doctor was four times. Only 12.8% of participants were testing their blood glucose level at monthly intervals.

Conclusion: It can be concluded that most of the diabetic patients both in urban and rural area visit specialized centers for diabetic care and their frequency of visit is about four times in a year but their home blood glucose monitoring practice was very low. All diabetic patients along with their family members need to be educated about self-diabetic care.

Keywords: Patient Acceptance of Health Care; Diabetes Mellitus; Rural Population; Bangladesh

Ensuring Healthy Outcome of Pregnancy with NCD through Strengthening Public Health Care (PHC) System

Md. Aminul Haque ([aminul.haque@du.ac.bd)](mailto:aminul.haque@du.ac.bd)[1], A.H.Md Mahabub Nawaz[2], Md Abdul Hamid[2], Esaba Sifat[2], Omar Faruque[2], Asia Binta Amanat Sumi[2], Tanzim Ahmed Khan[2]

[1]*Department of Population Sciences, University of Dhaka;* [2]*Global Marketing Research Farm*

Introduction: The prevalence of chronic non-communicable diseases is increasing worldwide. NCDs are causing serious harm to society both in terms of health and economy. Nowadays it is becoming the leading cause of morbidity and mortality in developing countries also. Non-communicable diseases (NCDs) are major causes of preventable deaths and disabilities. Bangladesh has been facing a dual burden of existing infectious diseases and an escalating rise of NCDs like diabetes, heart disease, stroke, cancer, chronic respiratory disease, etc. For getting prepared for the challenge of these diseases, information regarding their distribution and determinants is indispensable. The overall objective of the study was to delineate a picture of NCD risk factors and adverse pregnancy outcomes and assess the effectiveness of existing primary health care services in reducing adverse pregnancy outcomes (maternal and neonatal) caused by NCDs or its complications.

Methods: Mixed Methods research strategy were used and 1558 pregnant women from two Upazillas of Narsingdi district were interviewed to collect quantitative and qualitative information. In-depth interviews were also conducted among the concerned health providers.

Results: A total of 231 pregnant Women (PW) are suffering from different NCDs and more 348 PW are susceptible to NCDs. 96.0 percent PW never tested blood sugar level. 18.2% of the PW have High BP and 12.3% have Low BP. According to BMI measurement, 9.0% of the total PW have a probability of having Anaemia. But most of them are not aware and never tested. Out of total 1558 respondents, 25.6 percent of them have probability of having overweight and 8.3% having obese, however, they are not aware about the NCDs and never screened.

Conclusion: As the significant percentage of PW having any one NCDs but they are not informed. So, awareness should be created among pregnant women and their family members. Existing protocol for health professionals is sufficient enough to give treatment for patients having NCDs. The utilization of health services depends on the awareness of the users on NCDs and follow-up of the health providers. Acknowledgement: The study was conducted by Global Research and Marketing Firm.

Keywords: Pregnancy; Noncommunicable Diseases; Public Health; Primary Health Care

Impact of Training on Model Pharmacy and Model Medicine Shop Among Drug Dispensers in Bangladesh and Barriers Towards Sustainability

Sunjida Binta Ali (sunjida27@gmail.com)[1], Nantu Chakma[1], Md. Saimul Islam[1], Shyfuddin Ahmed[1], Raian Amzad [3], , Md. Iftakhar Hassan Khan[3,] Abul Kalam Azad[3], Md. Aziullah[4] , Babar ZU [2], Aliya Naheed[1]

[1]International Centre for Diarrhoeal Disease Research, Bangladesh (icddr,b); [2]Department of Pharmacy, University of Huddersfield, United Kingdom; [3]Management Sciences for Health (MSH); [4]Directorate General of Drug Administration

Introduction: Management Sciences for Health (MSH) under the Better Health in Bangladesh (BHB) project trained more than 5000 Grade C dispensers in 11 districts in Bangladesh to promote Good Pharmacy Practice (GPP). We evaluated the impact of training among selected Grade C technicians on knowledge and practice in dispensing behavior, and explored barriers towards GPP.

Methods: A mixed-method approach was used to conduct a survey among eligible participants in 11 districts in Bangladesh randomly selected from the list of trained technicians provided by MSH from each of 11 districts. One non-trained technician (who did not participate in the BHB program) was recruited within 1 kilometer radius of a trained technician. Data were collected to assess knowledge, and dispensing practice observed. In-depth interviews were conducted among 32 participants to explore challenges for GPP.

Results: Between February and March 2022, 220 trained and 220 non-trained technicians were recruited. The mean age of the technicians was 40.58 years. Knowledge regarding guidelines of dispensing medicine (97.72% vs. 89.54%, $P<0.001$), temperature control for medicine storage (91.8% vs. 45.45%, $P<0.001$), counseling the customers (99.5% vs. 92.3%, $p<.001$) and labeling of the medicine (95% vs. 80.5%, $P<0.001$) was better among the trained than the non-trained dispensers. The trained dispensers were observed to be better equipped with GPP in terms of labeling (63.2% vs. 53.4%, $P=0.038$), counseling the customers on the purpose of the medicine (39.1% vs. 28.6%, $P=0.021$) and adherence to controlling ambient temperature (56.8% vs.26.8%, $P<0.001$) than the non-trained dispensers. In the qualitative interview, trained technicians have demonstrated better knowledge and practice than the non-trained technicians. Lack of technical knowledge among the technicians and bad behavior of the customers were reported to be challenges towards GPP.

Conclusion: Training offered to Grade C technicians by the MSH under the BHB project led to better knowledge and dispensing practices in Bangladesh. Implementation of the training program on a larger scale will promote good dispensing behavior and rational use of medicine in Bangladesh.

Keywords: Pharmacy; Pharmaceutical Preparations; Bangladesh

Pattern of Anti-Hypertensive and Anti-Diabetic Drug Use and Treatment Cost in Diabetic and Hypertensive Patient in Bangladesh: A Cross-Sectional Study

Aliya Naheed[1], Md. Saimul Islam[1], Sunjida Binta Ali[1], Iftakharul Islam[2], Mahbubur Rahman[3], Abul Kalam Azad[4]

[1]*International Centre for Diarrhoeal Disease Research, Bangladesh (icddr,b);* [2]*Management Sciences for Health (MSH);* [3]*Directorate General of Health Services (DGHS);* [4]*Directorate General of Drug Administration (DGDA)*

Introduction: The burden of hypertension and diabetes is growing globally. We explored the patterns and cost of treatment for hypertension and diabetes in Bangladesh.

Method: We selected 40 years and older people being treated for hypertension or diabetes living within 5 kilometers radius of a facility. A cross sectional survey was conducted to capture data on the choice of provider, drug, and cost of drugs following a written consent.

Results: Between November 2019 and January 2020, 187 individuals with hypertension, 77 with diabetes and 89 individuals with both the conditions were recruited. Mean age of the participants was 52 years and 70% were females. Among the hypertensive patients 57% sought care from a private facility, 34% from a public facility and 5% from a drug outlet. Among the diabetics 71% sought care from a private facility, 19% from a public facility and 2% from a drug outlet. Total 58 anti-hypertensive and 45 different anti-diabetic medicines were reported to be consumed by the patients. Beta blocker (30.3%) and angiotensin receptor blocker (ARB) (22%) were the most commonly used anti-hypertensive, and Biguanides (74%), and Sulphonylureas (62%) were the most commonly used anti-diabetic drug groups. Cost of anti-hypertensives ($7 vs. $11, P<0.01) and anti-diabetics ($6 vs.$20, <0.001) was higher if treatment was sought from a private facility. The cost of treating both was substantially higher in private than public facilities ($15 vs. $30, P<0.001).

Conclusion: Types of medicines used by hypertensive and diabetic patients in the community are diverse. Diabetic patients more frequently seek care from a private facility than that of a hypertensive, and the overall cost of treatment is higher for diabetes than hypertension. Introducing a generic treatment protocol for hypertension and diabetes care could reduce the out-of-pocket cost of treatment for hypertension and diabetes.

Keywords: Anti-hypertensive, anti-diabetic, treatment cost, public facility, private facility.

Theme:
CURRENT BEST PRACTICES AND INNOVATION FOR PREVENTION AND CONTROL OF NCDs

Comparative Effect of Traditional Versus Communication Technology-Based Health Educational Intervention Focusing on Diabetes in Bangladesh: A Randomized Controlled Trial

Bilkis Banu (bilkisbanu80@gmail.com)[1,2], Mobarak Hossain Khan[3], Liaquat Ali[4], Rainer Sauerborn[1], Aurelia Souares[1]

[1]*Heidelberg Institute of Global Health, University of Heidelberg, Germany;* [2]*Department of Public Health, Northern University Bangladesh;* [3]*Department of Social Relations, East West University, Dhaka, Bangladesh;* [4]*Pothikrit Institute of Health Studies, Dhaka, Bangladesh*

Introduction: Communication Technology based Health Education (CTHE) and Traditional Health Education (THE) both types of intervention played an effective role to foster long term improvements in adherence to diabetes self-management. But it is not yet identified which one is more effective for peripheral patients of Bangladesh. This study was designed to compare the effectiveness of these two types of intervention.

Method: This was a randomized controlled trial conducted in Thakurgaon district of Bangladesh with two types of intervention groups (CTHE and THE) and one control. CTHE received educational sessions with reminder and monitoring through mobile phone voice calling; THE group received educational sessions with home visit-based reminder and monitoring. Each group had 330 adult diabetics. Data were collected by face-to-face interview using semi-structured questionnaires. Analysis of Co-variance and regression were used in the analysis.

Result: CTHE and THE groups showed significant (p<0.01) improvement in knowledge, adherence to self-management and health outcome compared to control. Bonferroni post hoc comparison between groups showed that in most components of knowledge (diet, mean difference: 6.04; physical exercise/ activities, 3.48; follow-up visit/ blood glucose test, 4.88; avoid tobacco intake, 3.09; basic knowledge, 1.49 and technical knowledge of diabetes, 2.65) and waist circumference (mean difference: 5.12) of CTHE group was significantly improved than the THE group. Likewise, adherence (percentage) to drug (CTHE vs. THE, 57% vs. 53%); physical exercise/ activities (55% vs. 42%); follow-up visit/ blood glucose test (69% vs. 50%); and avoid tobacco intake (26% vs. 25%) improved in the CTHE group compared to THE group. Furthermore, CTHE (mean±SD, 21.96±7.94) was revealed as the cost-effective technique in diabetes self-management compared to THE (mean±SD, 30.21±16.00).

Conclusion: CTHE based intervention with reminder and monitoring seems to be more effective compared to THE based intervention in improving knowledge, management adherence and health outcomes of peripheral diabetic patients of Bangladesh.

Keywords: Diabetes Mellitus, Type 2; Communication; Randomized Controlled Trial

A Qualitative Study on Building Capacity of The Health Professionals to Address The Risks Of NCDs In Bangladesh

Mohammed Kamruzzaman (m.zaman@icddrb.org)[1], Sadika Akhter[1], Aminur Rahman[1], ATM Iqbal Anwar[2]

[1]Health Systems and Population Studies Division, International Centre for Diarrhoeal Disease Research, Bangladesh; [2]Obstetrical and Gynecological Society of Bangladesh

Introduction: Bangladesh is experiencing an epidemiological transition from communicable diseases to Non-Communicable Diseases (NCDs) and it accounted for 67% of all deaths. The rapid urbanization, increased life expectancy at birth, unhealthy diet, and lifestyle changes have led to an increased burden of NCDs in recent times. The study aimed at assessing the capacity of public health professionals at individual and organizational level for evidence-based better health policies and strategies to address the increasing problem of NCDs.

Method: A qualitative study was conducted applying Key Informants Interview (KII) and In-depth Interview (IDI) with the health sector programme managers and service providers at district and division level and policy makers and researchers at central level. They were selected purposely. The study was conducted in June-October, 2020.

Results: A total of 75 interviews were conducted to collect primary data. Among them 20 were KIIs with senior officials, policy makers and researchers from *MoH&FW, DGHS, IEDCR, BSMMU* and 55 IDIs with mid-level health managers at district and divisional level such as divisional director, civil surgeon and upazila health and family planning officer. The findings reveal that the issues of accessing, assessing, analyzing and using evidence to support NCD policies and programmes in Bangladesh are important and the health professionals have an increasing opportunity to contribute to the policies-programmes cycle. The gaps also between policy makers and researchers are lessening.

Conclusion: To manage future risks associated with NCDs in Bangladesh, a cutting-edge approach is essential to advance and sustain progamme-research-policy collaboration at individual, organizational and national level.

Keywords: Noncommunicable Diseases; Qualitative Research; Capacity Building

The Role of Smartphone Applications in Preventing Type 2 Diabetes Mellitus: A Systematic Review

Esrat Jahan (esjahan@gmail.com)[1,2], Rawan Almansour[3], Leticia Bezerra Giordan[4], Rimante Ronto[1], Kiran Ijaz[4], Liliana Laranjo[5]

[1]Faculty of Medicine and Health Sciences, Macquarie University; [2]International Center for Diarrhoeal Disease Research, Bangladesh; [3]College of Applied Medical Sciences, King Faisal University; [4]Australian Institute of Health Innovation, Macquarie University; [5]Faculty of Medicine and Health, University of Sydney

Introduction: Type 2 diabetes mellitus (T2DM) is a major public health concern worldwide. Smartphone applications are becoming a popular technological intervention in helping prevent

T2DM by promoting a healthier lifestyle; however not much is known about its efficacy and user perspectives. The aim of this study is to evaluate the effectiveness of smartphone apps in improving clinical outcomes in people at high risk of developing T2DM and explore user perspective.

Methods: Primary studies were searched in four databases from 2008 to 2021 and included if they involved adults at high risk of developing T2DM and tested a smartphone app to prevent type 2 DM. Qualitative studies exploring user perspectives of smartphone apps were also included. A narrative synthesis was conducted for all studies. Continuous outcomes from RCTs were pooled as weighted mean difference (WMD) in two meta-analyses: weight loss and glycated hemoglobin (HbA1c).

Results: After screening 936 articles, 13 experimental, one qualitative and one mixed methods study were included. All except one RCT were conducted in developed countries. Six RCT's were combined in meta-analyses. There was a significant effect of smartphone apps on weight loss and non-significant in HbA1c levels. Weight, diet and physical activity monitoring were the most common interventions' features present. Results from qualitative studies highlighted the need for personalisation of smartphone apps.

Conclusion: Smartphone apps have a promising effect in preventing T2DM. Further research needs to be done in developing nations and more qualitative studies are needed to better understand how to better engage users.

Keywords: Diabetes Mellitus, Type 2; Mobile Applications; Telemedicine; Smartphone

---

ABS-043

Patients' Satisfaction in A Proof-Of-Concept Study of Training and Digital Care Coordination for Hypertension and Type-2 Diabetes Management in The Primary Health Care System in Bangladesh

Aysha Anan (aysha.anan@bracu.ac.bd)[1], Rina Rani Paul1, Md. Mokbul Hossain[1], Abu Abdullah Mohammad Hanif[1], Mehedi Hasan[1], Md. Ariful Alam[2], Mithila Faruque[3], AHM Enayet Hossain[4], Abdul Alim[4], Syed Nasir Uddin[5], Afsana Karim[6], Brian Oldenberg[7], Ian Goon[8], Malabika Sarker[1], John C Chambers[8], Malay Kanti Mridha[1]

[1]Centre for Non-communicable Diseases and Nutrition (CNCDN), BRAC James P Grant School of Public Health, BRAC University; [2]BRAC; [3]Bangladesh University of Health Science, [4]Ministry of Health and Family Welfare, Bangladesh; [5]National Institute of Cardiovascular Diseases; [6]Bangladesh Institute of Research and Rehabilitation in Diabetes, Endocrine and Metabolic Disorders; [7]University of Melbourne; [8]Global Health Research Unit, Imperial College London

Introduction: Bangladesh is integrating non-communicable diseases (NCD) prevention and control interventions in the primary health care system. We implemented a proof-of-concept study to determine the effectiveness of the integration of training and digital care coordination for hypertension and type-2-diabetes (T2D) management in the primary health care system. In this paper, we are reporting patients' satisfaction.

Methods: We trained primary health care (PHC) providers on the package of essential NCD interventions and deployed a digital care coordination system. We replicated the government system of NCD care by employing staff and setting up community health centers (like community clinics) and NCD centers (like NCD corners). We screened participants, aged 40 years and older,

from three community clinic areas of Parbatipur Upazila and delivered hypertension and T2D services following the Bangladesh national protocol. We administered a 27-item patient satisfaction in primary care consultation (PiC) questionnaire at the community health centers and NCD centers. The 27 questions were in seven domains, including travel time, waiting time, travel cost, ease of getting service, and technical quality of care. We analyzed data using STATA 17.0.

Results: Between September 13 to December 9, 2021, we interviewed 771 participants: 474 at community health centers and 297 at NCD center after they received health care. Among the participants, 62% had no or incomplete primary education, 18% were farmers and 57% were home-makers. Ninety-one percent reported waiting time as either short or appropriate, 86 percent were extremely satisfied with the privacy arrangement, 95% were extremely satisfied with the treatment and follow-up care of the PHC providers, 81% were extremely satisfied with the hours of operation, 82 percent were either satisfied or extremely satisfied with the improvement in clinical outcomes, 92% expressed overall satisfaction with the services provided, and 99% opined that they would visit the health facilities again.

Conclusion: Provisions of NCD care following the national protocol and service delivery model can ensure a high level of satisfaction for the patients if the PHC workers are adequately trained and supported. The use of a digital care coordination system for NCD management may improve patients' satisfaction.

Keywords: Hypertension; Patient Satisfaction; Diabetes Mellitus, Type 2; Bangladesh

---

ABS-048

Role of 18F-FDG PET-CT Scan for Evaluating Newly Diagnosed Lung Cancer

Biswas SK (drsbiswas09@yahoo.com), Rahman F, Afrin R, Hossain S, Akhter A, Islam S, Hossain M, Sharmin S, Majumder MR, Sultana T, Biswas T, Begum R, Haque FS, Haque J

Institute of Nuclear Medicine & Allied Sciences, Dhaka Medical College Hospital, Dhaka, Bangladesh

Introduction: Proper diagnosis and staging is very important for lung cancer management. Initial staging is usually performed with CT but functional imaging using integrated positron emission tomography (PET) and CT is being used to provide more accurate staging, guide biopsies, access response to therapy and identify recurrent disease. This study was designed to unravel the impact of PET-CT scan for evaluating newly diagnosed primary lung cancer.

Methods: Seventeen lung cancer patients (Age 63±8 Yrs, Male 13) were enrolled for this study. All of them underwent CT guided FNAC. Whole body FDG PET-CT scan was performed in a whole body PET-CT scanner. High resolution contrast CT was obtained of the same area. Oral contrast was administered for bowel opacification. Images were reconstructed. FDG uptake was performed by calculating SUV max value, corrected for dose administered and body weight.

Results: Aspiration cytology revealed 6 cases of adenocarcinoma, 5 squmous cell carcinoma, 3 non-small cell carcinoma and rest 3 cases showed features of small cell carcinoma. Mean diameter of the primary lung lesion was 6.5 ± 3 cm with a SUV max of 15.79 ± 6.59. Thirteen cases showed locoregional lymph node metasatsis with a SUV max of 10 ± 4.87. Four cases showed distant lymph node metastasis with a SUV max of 10.12 ± 4.69. Distant bone metastasis was observed in 3 cases and malignant pleural effusion was detected in 2 cases. Besides this one case showed

pericardial disease involvement & one case showed contra lateral FDG avid metastatic nodule without any morphological change in CT.

Conclusions: ^{18}F-FDG PET-CT scan is now a well-established method for staging lung cancer & played a pivotal role for treatment planning and also provided prognostic information in a newly diagnosed case of lung cancer. We need more PET-CT scanners for supporting a huge number of cancer patients.

Keywords: Fluorodeoxyglucose F18; Positron Emission Tomography Computed Tomography; Lung Neoplasms; Radiopharmaceuticals

---

ABS-111

Effectiveness of Digitally Enabled Patient Support Program (PSP) Through Patient Empowerment for Comprehensive Management of Diabetes

Md. Faysal Bin Salah, Sultan Mahmood, Sharmin Akhter Zahan (sharmin.zahan@dh.health), Khaled Hasan

Digital Healthcare Solutions of Grameen Telecom Trust, Bashundhara R/A, Dhaka-1229

Introduction: In Bangladesh, there were 8.4 million diabetic patients in 2019 which is projected to almost double (15.0 million) by 2045. Study revealed that 82% of diagnosed diabetic patients had inadequate glycaemic control. In addition, 87% of patients do not follow the physical activity guidelines leading to more complications. In this context, a digitally enabled Patient Support Program (PSP) was designed for empowering patients through structured education. The aim of the study was to evaluate the effectiveness of such PSP on comprehensive management of Diabetes.

Methods: A longitudinal observational study was carried out among the diabetic patients enrolled in PSP. The referred patients were new or old insulin users and joined this program through referral by their physicians. The PSP consisted of 6 protocolized counseling focusing on lifestyle modification, physical activity, diet, blood glucose monitoring, proper insulin usage etc. for 6 months. 3 counseling sessions were given through telephone by physicians and 3 home counseling were given by pharmacists. Data on various health parameters were collected during each of the counseling sessions.

Results: Analyzing 1st & 6th months data of 50 patients, it was observed that diabetes was averagely controlled (FBS <8 mmol/l) in 73% patients which was only 23% at the initiation of the PSP. Weekly Self-Monitoring of Blood Glucose (SMBG) among patients increased from 41% to 78%. Moreover, 61% patients were not confident & did not perform insulin dose titration which was reduced to 11% at the end of the program. Following evaluation of the program, 87% of patients expressed that they were highly satisfied.

Conclusion: Comprehensive management of diabetes is essential for better control & prevention of diabetic complications. Leveraging digital tools & constant nudges are hence urgently needed to ensure patient compliance, increasing treatment adherence and promotion of healthy lifestyle.

Keywords: Patient Participation; Diabetes Mellitus, Type 2

Assessment and Molecular Identification of the Cardiovascular Disease Risk Factor for Early Prognosis of Dyslipidemeia in Patients With Abnormal HDL and LDL levels

Mahbubur Rahman[1], Farhana Yesmin[2], Zahidus Sayeed[3], Jahangir Alam[2], Zennat Ferdousi[2], Kazi Md. Faisal Hoque[2] and Md Abu Reza (reza.gen@ru.ac.bd)[2]

[1]*Department of Biochemistry, Rajshahi Medical College Hospital, Rajshahi;* [2]*Molecular Biology and Protein Science Laboratory, Department of Genetic Engineering & Biotechnology, University of Rajshahi, Rajshahi-6205, Bangladesh;* [3]*Department of Cardiology, Rajshahi Medical College Hospital, Rajshahi*

Introduction: Bangladesh is now experiencing a notable epidemiological transition from communicable disease to non-communicable disease and undoubtedly cardiovascular disease (CVD) in the form of Atherosclerotic cardiovascular disease (ASCVD) has emerged as the first major cause of death. In this population, two commonly manifested forms of ASCVD are myocardial infarction (heart attack) and stroke which generally results from Lipid profile abnormality or Dyslipidemia. Alteration of lipid profile is mostly influenced by genetic factors though the secondary causes such as diet, obesity, smoking, exercise, metabolic disorders etc. Research on genetic factors influencing dyslipidemia has been conducted in many countries to minimize the risk through emphasizing prognosis rather than cure, but unfortunately no relevant study is found on Bangladeshi population so far.

Method: Considering this gap the present study was designed to check the genetic variation in three major lipid metabolism related genes namely *PCSK9*, *CETP*, *ABCA1* and the gross assessment of secondary risk factors. We conducted lipid profiling of 200 participants including 100 CVD patients with dyslipidemia and 100 healthy individuals as control, among them 25 patients and 25 controls were selected based on inclusion and exclusion criteria for molecular characterization via DNA sequencing.

Results: By analyzing sequencing data, we have found two loss of function mutation in ABCA1 gene (S1671C,Q1688H) in five low HDL phenotype, three loss of function mutation (R30A,A54L,Q90H) and one gain of function mutation (L133Q) in PCSK9 gene in low LDL and High LDL phenotype respectively and however, no mutation was detected in case of *CETP* gene.

Conclusion: The current study suggests that there is a close correlation between *ABCA1* gene mutation with serum HDL and *PCSK9* gene with serum LDL level. Large scale study on genetic factors is necessary in our population to predict the CVD risk for the upcoming generation.

Keywords: Cardiovascular Diseases; Risk Factors; Prognosis; Cholesterol, HDL; Cholesterol, LDL

Low Dose Aspirin in Prevention of Preeclampsia: A Randomized Control Trial

Shapla Khatun (dr.shapla_islam@yahoo.com), Ferdousi Begum (fbegum9@gmail.com)

Birdem General Hospital

Introduction: Preeclampsia is an important cause of maternal and perinatal morbidity and mortality. There is now good evidence that intake of low dose aspirin during pregnancy reduces the risk of pre-eclampsia. Aim of study is to find out the efficacy of low dose aspirin in prevention of preeclampsia among pregnant women who are at high risk for developing preeclampsia.

Methods: A Randomized controlled trial study was carried out for prevention of preeclampsia among pregnant women for high risk for developing preeclampsia in BIRDEM-2 General Hospital, Dhaka from January 2018 20 July 2019. Two hundred participants were randomized into intervention(n=100) and control (n=100) groups at their 12 weeks to 19 weeks of gestation. Only the intervention group (n=100) took 75 mg aspirin daily in full stomach after lunch. Aspirin was continued throughout pregnancy and stopped either until 36 weeks pregnancy or when delivery occurred. Outcomes were observed in both intervention & control groups separately & then compared.

Results: Preeclampsia occurred 8% in the intervention group as compared with 48% in the control group. Aspirin reduced the risk of preeclampsia 83 times compared to control. (Relative Risk 0.17; 95% confidence interval 0.12 to 0.43 ; P=0.001).The difference was statistically significant (p<0.05).Other maternal & fetal outcomes were similar in aspirin & control groups except mode of delivery (p=0.017).

Conclusion: Low dose (75 mg) aspirin reduced the incidence of preeclampsia in women at high risk for preeclampsia. So, identifying this high-risk group during the antenatal period and ensuring intake of Low Dose Aspirin between 12 weeks to 19 weeks of gestation to reduce occurrence of Preeclampsia and its complications.

Keywords: Pregnancy; Pre-Eclampsia; Aspirin; Platelet Aggregation Inhibitors

Theme:
MULTISECTORAL ENGAGEMENT FOR NCDs

Food Consumption in an English Medium School Children During COVID-19

Nabhira Aftabi Binte Islam (nabhira14@yahoo.com)[1], Sharika Shahrin[2]

[1]Dental Public Health Department, Marks Medical College Dental Unit; [2]Department of Pediatric DentistryGonoshasthaya Samaj Vittik Medical College (Dental Unit)

Introduction: Children never faced a pandemic situation. For this situation children's lives are being affected, including their daily routine. This situation could have influenced both bad or good habits. One of the most alarming issues was their food consumption pattern during lockdown at home. We aimed to assess an English medium school children's food consumption habit during COVID-19 lockdown.

Methods: This cross-sectional study was carried out about one of the English medium school children's eating habits during the COVID-19 lockdown in Bangladesh. Online questionnaire developed and delivered to the caregiver of the children. Total 130 caregivers of 223 children were selected. Study period was 1st to 31st October, 2020.

Results: Distribution of the children according to the sex, female (70.4%) were more than male and ten to eleven years' children (40.8%) were more. Caregiver educational background found, graduation (76.2%), only 48.5% caregivers sometimes did physical activity, monthly family income more the two lacks (66.2%), homemaker (71.6%) and 77.7% of them cooked food with the help of a maid. Chocolate, milk products, meat and fast-food intake is alarmingly high, found in seven days' food intake chart. 60% of children take extra food two times in a day, 50% of that food was homemade and online ordered. Food was 44.6% ordered two to three times per week, mostly fast food (66.2%). 63.1% of children were found to be overweight. There was a significant association between frequent online food order and changing the body shape of the child (p=0.04) and monthly income and how many times children's intake extra food in a day(p=0.01).

Conclusion: Schools were run on an online basis. Parents were responsible for their children's food intake throughout the whole day. It was challenging for the parents.

Keywords: COVID-19; SARS-CoV-2; Feeding Behavior; Children.

Elimination of Cervical Cancer By 2030: How Far Are We and Ways to Reach the Goal?

Jannatul Ferdous (jannat@bsmmu.edu.bd)[1]

[1]Bangabandhu Sheikh Mujib Medical University

Bangladesh, like other developing countries, faces a burden of cervical cancer. About 8,268 new cervical cancer cases were diagnosed & 4,971 deaths in Bangladesh (GLOBOCAN 2020). Due to lack of adequate screening, & a high prevalence of risk factors, cervical cancer is the 2nd leading cause of cancer death in women in Bangladesh. While maternal mortality has substantially decreased, women dying from cervical cancer remain unchanged. **Purpose:** On May 2018, the Director General of WHO, called for a "Coordinated action towards elimination of cervical cancer as

a public health problem" globally at the World Health Assembly and set some short-term milestones to reach goal which is called 90%-70%-90% triple pillar intervention strategy. On November 17, 2020 WHO officially launch the elimination strategy. Bangladesh also declared & celebrated the formal launch of the Global Strategy.

All the information has been collected from sources like the National guideline for cervical & breast cancer screening, FIGO Cancer Report, 2021 and WHO guideline for screening and treatment of cervical pre-cancer lesions for cervical cancer prevention (2nd edition). A pilot study on vaccination was conducted in 2008 among 67 adolescent Bangladeshi girls and the result was satisfactory but currently HPV vaccine is not available in Bangladesh. Regarding screening, coverage is poor (14%). About 70% of patients with cervical cancer present in aadvanced-stagedisease. Radiotherapy machines are inadequate.

Following tasks are required to eliminate cervical cancer in Bangladesh: continuous awareness program, incorporation of HPV vaccination in EPI, switch over of screening methodology from VIA to HPV DNA testing, single visit approach for the screen-positive women, establishment of surgical & radiotherapy facilities at 8 proposed divisional cancer center and developing more palliative care centers.

Keywords: Uterine Cervical Neoplasms; Goals

Mental Health Issues in the COVID-19 Pandemic and Responses in Bangladesh: View Point of Media Reporting

Mir Nabila Ashraf (nabila.ashraf@icddrb.org)[1], Hannah Jennings[2], Nantu Chakma[1], Noshin Farzana[1], Md. Saimul Islam[1], Toufiq Maruf [3,4], M. M. Jalal Uddin[5], Helal Uddin Ahmed[6], David McDaid [7†] and Aliya Naheed [1*†]

[1]Initiative for Non-Communicable Diseases, Health System and Population Studies Division, International Centre for Diarrhoeal Disease Research, Bangladesh, Dhaka, Bangladesh; [2]Department of Health Sciences, University of York and Hull York Medical School, Heslington, United Kingdom; [3]Bangladesh Health Reporters' Forum, Dhaka, Bangladesh; [4]Daily Kaler Kantha, Dhaka, Bangladesh; [5]National Institute of Neurosciences & Hospital, Dhaka, Bangladesh; [6]National Institute of Mental Health, Dhaka, Bangladesh; [7]Department of Health Policy, Care Policy and Evaluation Centre, London School of Economics and Political Science, London, United Kingdom

Introduction: The media has reported the negative impact on mental health issues globally, though in low-and middle-income countries (LMIC) the role is not explored. We highlighted the mental health issues reporting amid the COVID-19 situation in Bangladesh and initiatives undergone for mental health support from a media point of view.

Methods: We reviewed articles of 10 local newspapers including three English and seven Bangla newspapers published during the COVID-19 pandemic. Through discussion among the team members, we identified the news topics searching across online portals and newspapers. Extrapolated data were documented in an Excel spreadsheet. A mixed-method approach following a framework analysis was used for data analysis. Commonly emerging topics and recurring issues were generated from data. For quantitative data, descriptive statistics were applied.

Results: We have identified around 201 reports between March 2020 and March 2021 on mental health issues. Among them, 45 reports (22.4%) mentioned stress because of unemployment, financial crisis, and loneliness, around 80 suicide cases were highlighted in 50 reports (25%) due to family issues, sexual violence, harassment, financial crisis emotional breakdown, and stigma of

COVID-19. During the pandemic, approximately 77 reports (38.3%) highlighted domestic violence. There were 29 reports (14.4%) that referenced initiation taken by different organizations to tackle mental health issues.

Conclusion: In a low-resource setting, news coverage plays an important role to highlight critical issues such as mental health derived due to COVID-19. One of the strategies would be capacity building of the media on the way of reporting mental health issues especially during an emergency situation such as COVID-19 to increase awareness of the public and policymakers regarding the adverse effect of the COVID-19 pandemic on mental health in Bangladesh.

Keywords: Mental Health; COVID-19; Pandemics; SARS-CoV-2; Mass Media; Suicide; Bangladesh

---

Research on Ensuring Healthy Outcome of Pregnancy with NCD through Strengthening Public Health Care (PHC) System

A.H.Md Mahabub Nawaz (mahabub.nawaz@grm-bd.com), Md. Aminul Haque,Md Abdul Hamid, Esaba Sifat, Md Omar Faruque, Asia Binta Amanat Sumi, Tanzim Ahmed Khan, Laboni Parvin,

Department of Health, Nutrition, Water & Sanitation, Global Research & Marketing (GRM)

Introduction: Conferring to NCD's high morbidity and mortality ratio and also a high-cost burden for (LMICs)countries (where health care systems are unprepared to combat the threat of non-communicable diseases), observation found in sound-resourced PHC will reduce pregnancy-related upshots. In Bangladesh, an estimated 59.0 percent of total deaths – 886,000 deaths a year – occur due to NCDs and are deficient in the provision and ideal utilization of existing PHC services. This article assesses the impact of PHC on NCD outcomes in LMICs. We evaluate the fraction of Maternal & Neonatal deaths due to NCDs, recognize risk factors, develop and fetch PHC management to access those interferences Efficacy.

Method: In Narsingdi Districts (Belabo & Palash upazilla), conducting a Quantitative (semi-structured questionnaire) method to collect 1558 pregnant women data. Qualitative methods used for PHC services data to utmost implementation to sustain strong provision and utilization of exciting PHCs.

Results: A total of 231 pregnant women are suffering from different (NCDs) and 348 pregnant women might have NCDs, are unaware of regular sugar tests and have low blood pressure and other NDCs related Diseases.

Conclusion: One-way SMS was the most commonly used mobile function to deliver reminders, health care education, and PHC information. The evidence indicates the potentiality of Primary health care for improving NCD outcomes in pregnant women needs Government -management interventions.

Keywords: Noncommunicable diseases; Systematic Review; Public Health; Primary Health Care

Innovative ways to develop Noncommunicable Diseases Research Capacity: Learning from a Planning research grant in Bangladesh

Noshin Farzana (noshin.farzana@icddrb.org)[1], Md. Saimul Islam[1], Mir Nabila Ashraf[1], Nantu Chakma[1], Aliya Naheed[1]

[1]*Initiative for Non Communicable Diseases, HSPSD, icddr,b, Bangladesh*

Introduction: The primary health care system of Bangladesh is not prepared enough to tackle the growing burden of Noncommunicable Diseases (NCD). There is little understanding of the underlying population risks and strategies for the prevention of NCD with limited qualified public health researchers to improve the situation. The goal of the project was to enhance clinical research in Bangladesh and explore all possible avenues for building capacities of the local researchers towards generating local evidence through high quality research.

Method: To address the objective, icddr,b developed a fellowship program for clinicians, academicians and researchers in Bangladesh under an International Research Training Planning Grant awarded by the NIH in 2017. An innovative training platform, Clinical Research Platform, Bangladesh, which is a tripartite initiative of icddr,b, Bangabandhu Sheikh Mujib Medical University (BSMMU), and British Medical Journal (BMJ) also created to host this program. We offered workshops, hands-on training, personal development sessions with international faculty and scope of dissemination for the fellows throughout the project period.

Results: This platform supported clinicians (n=25) and public health researchers of Bangladesh (n=8) to offer non-conventional hands-on training on research methodology, analyses and writing manuscripts for publishing in peer reviewed journals through national (n=9) and international workshops (n=2). Three personal development sessions supported the fellows to specify their research focus. For creating an enabling environment for the clinicians and the public health researchers to present their seminal work, a scientific congress on NCD was organized and an abstract book was published across nine themes of NCDs. Out of 200 submitted abstracts, 81.1% were presented for the first time in this congress.

Conclusion: The comprehensive activities through the program helped to establish a strong network across several institutions, which could engage a large group of researchers in Bangladesh, including junior to senior faculty, and created a vibrant environment for supporting high quality research in Bangladesh.

Keywords: Noncommunicable diseases; Bangladesh

OTHER ABSTRACTS

Designing A Non-Communicable Disease (NCD) Risk Reduction Intervention in Rural Bangladesh Through Future Search Conference (FSC) Approach

Shahida Haque[1], Nazrul Haque[1], Kapil Ahmed[2], A. B. M. Rasheduzzaman[1], H. M. Miraz Mahmud[1], Rajon Banik (rbanik@bangladesh-ccp.org)[1]

[1]Bangladesh Center for Communication Programs; 2Bangladesh Tobacco Control Research Network

Introduction: Studies reveal that prevalence of NCDs, and the risk factors are increasing in Bangladesh. Therefore, the Non-communicable Disease Control Program under the Directorate General of Health Services proposed designing a community-based intervention to reduce the burden of NCDs in Bangladesh. In addition to a mixed-method rural survey, the Future Search Conference (FSC) approach was used to ensure maximum stakeholder participation. The purpose of the study is to design community interventions to reduce NCD risk factors.

Method: FSC was held in each division (total 8) to create a foundation for the development of community action plans and commitment by involving all stakeholders (community people, opinion leaders, and local government, NGO and media representatives). The entire FSC was explorative, reflective and analytical; based on participatory principles to enable participants to develop a common vision and action plans to reduce NCD risk factors in their communities.

Results: FSC participants agreed that the NCDs of concern were Hypertension, Heart Disease, Diabetes and Substance abuse; and NCD Services required strengthening. They proposed community action plans for: Change of food habits to reduce excess salt and sugar intake, avoid high calorie and junk foods and drinks, and avoid substance abuse including Tobacco; Change in attitude and practice for regular monitoring of Blood Pressure and Blood Sugar, and to ensure NCDC and counseling services at local health centers; Awareness and Behavior Change through NCD Awareness and Service Delivery Campaign, incorporate topics on NCD Control in the school curriculum, revitalize the School Health program, and conduct media campaign.

Conclusion: The community-based NCD risk reduction intervention incorporated the findings from the FSCs to include Policy and Media advocacy, NCD Awareness and Behavior Change communication interventions, Capacity building of health providers, and school-based campaigns.

Keywords: Noncommunicable Diseases; Risk Reduction Behavior; Bangladesh

The Role of Interdisciplinary Team for Integration of Palliative Care in All Cancer Care Facilities of Bangladesh

Mobashshar Hassan[1]

[1]Senkatana Oncology and palliative care clinic, Maseru, Lesotho, Africa. Member of International Association for Hospices & palliative Care, Houston TX, USA.

According to palliative care ethics, it is the right of every individual to access the health care facilities where palliative care is available. Palliative care and disease-oriented care are not an 'either 'or' option but are a 'both and' option in the cancer hospitals. For Oncology to be integrated

with palliative care medicine, there is a need for specific knowledge and skills of two streams of patients' care, e.g. 1) tumour directed approach and 2) host-directed approach.

Reduced use of futile chemotherapy or radiotherapy at the end of life, improves pain control and other symptom control, which results in less anxiety and depression of cancer patients to improve their quality of life. The interdisciplinary team is needed to be formed by the specialist palliative care doctors, nurses, physiotherapists, occupational therapists, nutritionist, psychologist, social welfare officer and a chaplain or priest of different religions according to the patient's need. Systemic assessment and patient-reported outcome improve the physical and psychological health of a cancer patient and thus the perfect use of health care resources are achieved.

Willingness and enthusiasm are two important mind-sets needed for integration of palliative care by allocation of adequate resources by the managers of cancer care facilities in Bangladesh. There is also a need for strong advocacy towards the health planning and procurement levels as well as to include palliative medicine modules in basic medical education. The integration of palliative care has to be reflected in the national cancer strategy.

Keywords: Palliative Care; Cancer Care Facilities; Medical Oncology; Cancer Care Team

Scope of Nuclear Medicine in Management of Non-Communicable Diseases

Sadia Hossain, Farhana Rahman, Rawnak Afrin, Mohana Hossain, Rubina Begum

Institute of Nuclear Medicine and Allied Sciences, Dhaka

Nuclear medicine is a specialized section of medical science where radiation emitted from radio-isotopes are utilized. From its birth in early 20s, nuclear medicine has proven itself an important tool in every step of management of various non-communicable diseases. Superiority of nuclear imaging lies in its ability to detect changes in physiology at cellular level in most of the organs, enabling disease detection in a very early stage. In Bangladesh this sector has a long history of about 60 years, since 1962.

Nuclear medicine utilizes gamma, beta, positron emission from various radio-isotopes in disease management. Appropriate radio-isotopes, in desirable doses, are administered to patients in different routes for either imaging or therapeutic purposes. Same radio-isotopes are used for imaging and treatment of a certain disease. It also allows visualization of desired accumulation of therapeutic agents in targeted organs. Radiolabeled molecules and antibodies are used in Radioimmunoassay (RIA) & Immunoradiometric Assay (IRMA) for detecting various hormones, antigens, etc. very precisely.

Radiation emitted by the patients is captured by Gamma or PET scanners. Images are processed digitally & may be fused with CT or MRI for better localization. Fusion imaging increases sensitivity & specificity of the tests. IN RIA or IRMA amount of radiation is calculated to detect and measure targeted molecules.

Nuclear medicine can help in every step of management of most of the NCDs. When combined with anatomical imaging (CT/MRI), nuclear imaging provides better localization. NCDs may be better managed using this specialized field with its full potential.

Keywords: Noncommunicable Diseases; Nuclear Medicine

South Asia Centre for Medical Physics and Cancer Research: An Emerging Center Fighting Against Cancer

Hasin Anupama Azhari (ahasinanupama@gmail.com)[1,2], Mohammad Ullah Shemanto[1], Masum Chawdhury[1], Golam Abu Zakaria[1,3]

[1]*South Asia Centre for Medical Physics and Cancer Research (SCMPCR), Bangladesh;* [2]*United International University, Bangladesh;* [3]*Anhalt University of Applied Sciences, Germany*

Introduction: According to the National Bulletin, 2018, approximately 41 million people die from Non-communicable diseases (NCDs) each year, accounting for 71 percent of all deaths worldwide. According to the WHO, cardiovascular disease (17.9 million deaths or people) accounts for the majority of NCDs deaths each year, followed by cancer (9.0 million). The Alo Bhubon Trust (Alo-BT) was founded in 2017 with a focus on non-communicable diseases, especially cancer, in all aspects of prevention, early detection, diagnosis, treatment and rehabilitation. In Bangladesh, Alo-BT deals with preventive and early detection methods, while SCMPCR, a project Alo-BT, conducts various types of training programs for professionals from Bangladesh and the South Asia region by bringing international specialists to Bangladesh.

Method: SCMPCR organizes service oriented hands-on training programs for oncologists and medical physicists in public and private hospitals accredited by the European Board. Alo-BT organizes public awareness and screening programs. It is now working on setting up screening centers in rural areas for early detection (Ikarkuri and Patisar, Naogaon). It will offer a wide range of cancer screenings for both men and women.

Results: SCMPCR has organized five hands-on workshops (DMCH, AMCGH, SQHL, NICRH), three in-service training (Square Hospitals, NICRH, INMAS, BSMMU) and five e-learning programs for cancer patients in South Asia and beyond. SCMPCR also publishes a biannual Newsletter to showcase its operations and the panorama of cancer care in the region. Small-scale breast and cervical cancer screening programs have been conducted in Mirpur and Keranigonj.

Conclusion: SCMPCR has already gained international recognition through its initiatives. In order to achieve UN SDG-3, collaboration with the public and private sectors is essential. With the guidelines of the National Cancer Control Strategy and Plan of Action, DGHS, MOHFW, the Alo-BT and SCMPCR could play an important role in innovation for the prevention and control of NCDs.

Keywords: Neoplasms; Asia; Physics

Shifting from Infectious Diseases to Non-Communicable Diseases: A Double Burden of Diseases in Bangladesh

Shakeel Mahmood (shakeel@icddrb.org)[1], Rashedul Islam[2]

[1]*School of Humanities and Social Science, The University of Newcastle, Australia;* [2]*School of Public Health, North South University, Bangladesh*

Introduction: Double burden diseases are a serious global problem, which is currently affecting many low- and middle-income countries (LMIC), including Bangladesh. However, proper understanding of the need for a joint intervention against both Infectious Diseases and Noncommunicable Diseases (NCDs) has arisen only recently.

Method: Information was retrieved from documents available mainly in electronic databases and on the websites of specialized journals, using the terms double burden disease and health impact of double burden disease in Bangladesh. Collected documents were skim read to cases, whether they contained information in conjunction with Bangladesh health structure and double burden diseases.

Results: Bangladesh has made remarkable progress in reducing the human health burden of infectious disease, especially in children, largely due to reduction in mortality from infectious diseases. However, Bangladesh is yet to develop a national NCD plan that includes a human resource plan to cover prevention, diagnosis and treatment. The strategic plan recognizes the role of different actors, but fails to identify strategies to engage NGOs, academic institutions, research organizations and autonomous purchasing power parities (PPPs). There is minimal involvement of private agencies, NGOs, PPPs and development partners in NCDs.

Conclusion: As the double burden grows, ensuring that health systems can adequately address NCDs (along with communicable diseases) becomes integral to augmenting the capacity of health systems to meet evolving health challenges. There is a need for more complete surveillance and information related to the economic burden of these diseases. Action to reduce should focus on preventing and controlling the risk factors in an integrated manner. Intervention at all levels of society, from communities to governments, private organizations and non-governmental groups, is essential for prevention by amplifying awareness of people about a perfect and healthy lifestyle. The keys to controlling double burden diseases are primary prevention through promotion of a healthy lifestyle which is necessary during all phases of life.

Keywords: Noncommunicable Diseases; Communicable Diseases; Cost of Illness; Bangladesh

---

ABS-082

Impacts of Socio-Economic Status on Health Risks of Adolescent Mothers in Bangladesh

Md. Kaoser Bin Siddique (kaoserbd@gmail.com)[1], Shahana Afrose Chowdhury[2], Shamim Khan[3], Monaemul Islam Sizear[4], Meherun Ahmed[5]

[1]*Evaluation & Development, Zero Clubfoot Project, LMRF;* [2]*Center for Sustainable Development (CSD), University of Liberal Arts Bangladesh (ULAB);* [3]*LMRF;* [4]*Sajida Foundation; 5Asian University for Women (AUW)*

Introduction: Bangladesh is often lauded as a role model in achieving the Millennium Development Goals for its remarkable progress in reducing child and maternal mortality. The infant mortality rate as of 2014 is 32 per 1,000 live births; the total fertility rate has dropped significantly from 6.3% births per woman in the 1970s (Kamal, 2012) to less than 2.21 births per woman by the end of 2012 (World Bank, 2015). However, there has been a rising interest in the prevalence of childbearing during adolescence. In Bangladesh 66% girls are married before the age of 18. Despite high prevalence of child marriage, one third of adolescents aged between 15 and 19 are already pregnant (Thurnham, 2013). Socioeconomic indicators such as educational status, family

122

income, access to food and health service are impacting the health risks of adolescent mothers. This study aims to determine the impact of socioeconomic status on health risk of adolescent mothers.

Methods: A descriptive cross-sectional study was conducted at ZCF, LMRF from July 2016 to January 2017. LMRF is a children's charity organization working in Chittagong. The number of participants was 496 (less than 20 years old mothers) who were purposely selected with written consent. Descriptive and bi-variate analysis was done for data analysis.

Result: This study found a negative relationship between income status, educational status with health risks of mothers. Education of mothers is positively related with pregnancy complications, safe delivery, ultrasonography and negatively related with normal delivery. The more the mothers get educated they face more pregnancy complications, but it also increases the number of having safe delivery. Also, the more educated the mothers become it is less likely to have normal delivery. However, there is a positive relationship between husbands' occupation and health risks of mother. Adolescent mother living in rural areas have significant relation with miscarriage, access to health center, safe delivery and appointment with doctor. It was also found that improved residence, proper sanitation and husbands' educational status improve adolescent mothers' health condition.

Health risk of adolescent mothers has correlation with socioeconomic status. This study recommends that the government should give more importance to literacy, child marriage and socioeconomic status of adolescent mothers as significant factors impacting mothers' health.

Keywords: Adolescent; Adolescent Mothers; Economic Status; Socioeconomic Factors; Mothers; Bangladesh

Costs of Services and Funding Gap of the Bangladesh National Tuberculosis Control Programme 2016-2022: An Ingredient Based Approach

Md. Zahid Hasan[1], Sayem Ahmed [2,3,4] Zeenat Islam[1], Farzana Dorin[1], Md. Golam Rabbani (golam.rabbani2@icddrb.org)[1], Gazi Golam Mehdi[1], Mohammad Wahid Ahmed[1], Tazeen Tahsina[1], Shehrin Shaila Mahmood1, Ziaul Islam[1]

[1]icddr,b, Dhaka, Bangladesh; [2]Liverpool School of Tropical Medicine, Liverpool L3 5QA, UK; [3] Oxford University Clinical Research Unit, Ho Chi Minh City, Vietnam; [4]Nuffield Department of Medicine, University of Oxford, Oxford, UK

Introduction: Bangladesh National Tuberculosis (TB) Control Programme (NTP) has deployed improved diagnostic technologies e.g., X-pert for TB case detection and changed treatment strategies, which may drive up the programme costs. We aimed to estimate the supply-side unit costs of services and the funding gap of Bangladesh NTP.

Methods: An ingredient-based costing approach was applied using WHO's OneHealth Tool software. We considered 2016 as the base year and projected the cost estimates up to 2022 using the information on NTP planned activities. Data were collected through consultative meetings with experts and officials/managers, review of documents and databases, and visit to purposely selected five TB healthcare facilities. The estimated costs were compared with the allocation of funds to the NTP between 2018 and 2022 to estimate the funding gap.

Result: The estimated total cost of NTP was BDT 3,853.89 million (US$ 49.22 million) in 2016, which would increase to BDT 12,906.11 million (US$ 146.93 million) in 2022. Human resources (41.1%) and medicines and investigations/ supplies (38.0%) were the major two cost components.

Unit costs was the highest for treating Extensively drug-resistant TB (BDT 5,81,175.5 or US$ 7,422.4 in 2016). From 2018-2022, NTP will incur BDT 46,093.4 million (US$ 536.8 million), which is higher compared to the current allocation for NTP by BDT 20,286.10 million (US$ 235.18 million).

Conclusion: Our results indicated a funding gap of NTP from 2018-2022. Policy planners should advocate for additional funding to ensure smooth delivery of TB services in the projected years and can use the unit costs of TB services for planning.

Keywords: Tuberculosis; Cost-Benefit Analysis; Bangladesh

Prevention of Non-Communicable Disease Among Adolescents Through Gender Equity

Hridi (drhridi@gmail.com)[1], Fariha Haseen[1], Syed Shariful Islam[1]

[1]Department of Public Health and Informatics, Bangabandhu Sheikh Mujib Medical University

Bangladesh is undergoing demographic transition and as a result, is home to 36 million adolescents. As adolescence is a period of vulnerability, they undergo rapid and concurrent physical and psychological changes which make them prone to several non-communicable diseases (NCDs).

Behavioral risk factors are crucial in disease burden among teenagers, and these modifiable factors that begin in adolescence are linked to the burden of NCDs in adulthood. The most significant factors to adulthood NCDs are poor diets, smoking, alcohol use, and drug use. Social equality, youth empowerment, infrastructure and state development, good governance, and security are all proximal elements that are influenced by broader societal and macro factors. There is impetus at the national level to establish NCD-specific policies and legislation. In Bangladesh, adolescents have a high prevalence of NCD risk factors such as insufficient food consumption, insufficient physical activity, and being overweight. One-third of boys and more than half of girls had several risk factors. Furthermore, maternal education and wealth level was linked to the coexistence of several risk variables in girls. For the prevention and control of NCDs, it is critical to identify vulnerable adolescents, with special emphasis paid to girls, younger adolescents, and those who reside in slums and urban regions. While biological differences between men and women are important in shaping male and female patterns of morbidity and mortality, their overall impact can only be understood when gender differences are also considered in the analysis by using an equitable gender approach.

The interconnections between Sustainable Development Goal (SDG) 5 on gender equality and NCD-related targets under SDG 3 on ensuring healthy lives and promoting well-being recognize that women and men are not homogeneous groups and that their health opportunities and risks change over time as a result of social, economic, environmental, and cultural influences.

Keywords: Noncommunicable diseases; adolescents; gender equity; policy

Sexual Medicine Training in South Asia: Role of SASSM School Bangladesh

Mohammad Shamsul Ahsan (mohammadshamsulahsan@yahoo.com)[1]

[1]*Bangabandhu Sheikh Mujib Medical University (BSMMU)*

Introduction: Sexuality is not a lifestyle issue it's a quality-of-life issue Sexual dysfunction is very much prevalent among psychiatric, urological, dermatological endocrine and gynaecological and other disciplines of medical science. Yet training in sexual medicine is not incorporated comprehensively in the curriculum of different residency courses in Bangladesh.

Methods and Results: South Asian Society for Sexual Medicine (SASSM) was established in Bangaluru in 2013. SASSM members in Bangladesh established a 03 days state-of-art teaching initiative since 2017 annually for different specialists doctors covering bio-psycho-social aspects of sexuality. The faculties were national, regional and global experts in their respective fields. The participants were either specialists or post-grad students. Faculties from Bangladesh were eminent psychiatrists, urologists, dermatologists, endocrinologists & gynecologists. This school is a multidisciplinary approach covering different aspects of sexuality. The feedback from participants was very good and many of them attended more than once.

Conclusion: This training enriched post-graduate doctors' knowledge, skill and attitude in dealing with their clients. SASSM Bangladesh is a second of its kind following European Society School and first in Asia. This training has generated much interest among the South Asians participants also. The details will be presented at the conference.

Keywords: Schools; Sex Education; Bangladesh

Mitigating Noncommunicable Diseases Among Women in Bangladesh: A Diagonal Response

Sifat Parveen Sheikh[1], M. Mahmud Khan[2]

[1]*Health Systems and Population Studies Division, International Centre for Diarrhoeal Disease Research, Bangladesh;* [2]*Department of Health Policy & Management, University of Georgia, USA*

Non-communicable diseases (NCDs) have become a major cause of death and disability among women worldwide. In low-and middle-income countries (LMICs) such as Bangladesh, the rising burden of NCDs translates to adverse consequences for women. In low resource settings, women are faced with several socio-economic, cultural and religious barriers while accessing health services. The national NCD control program in Bangladesh is still at the implementation phase but the burden of NCDs continues to rise. Although women constitute half of the country's total population, the national NCD control program is not particularly focused on improving access to NCD-related health services for women. In Bangladesh, the existing maternal, neonatal, child and adolescent health services (MNCAH) delivery structure is responsive to the child-bearing and reproductive needs of women. Community Health Workers (CHWs) provide outreach services at the household level with the aim to provide access to vulnerable and marginalized populations.

The national program for breast and cervical cancers screening and control utilizes the existing MNCAH care pathway. The diagonal integration of other NCDs such as hypertension, diabetes and chronic respiratory illnesses within the MNCAH care continuum may also prove to be effective, as evidenced in other LMICs. For instance, monitoring of blood glucose levels and blood pressure during pregnancy not only allows screening for gestational diabetes and hypertension but also identifies risk factors for developing Type 2 Diabetes Mellitus and cardiovascular diseases during the life-course of a woman.

A critical challenge in NCD management is the loss-to-follow-up which may be addressed through multiple MNCAH service touchpoints: ante-natal and postnatal care visits. Mothers with identified NCD risk factors can be referred and linked to the mainstream NCD control program. Therefore, incorporating NCD management with MNCAH services presents a window of opportunity to provide accessible, timely and cost-effective NCD control services for women in Bangladesh.

Keywords: Noncommunicable Diseases; Risk Factors; Bangladesh

ABS-102

Psychoeducational Program for Family Caregivers of People with Dementia: Protocol of A Prospective Study in Two Tertiary Care Centers of Bangladesh

Fatima Zohra (zarefin2@gmail.com)[1]

[1]*Bangabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh*

Methods: The prospective study will be conducted among the family caregivers of dementia patients. Family caregivers who are directly related with the caregiving task will be included in the study upon acceptance. However, caregivers who are being paid for the service will be excluded from the study.

Place of the study: The study will be conducted in two specialized clinics of two tertiary level hospitals- Dementia clinic of Bangabandhu Sheikh Mujib Medical University and Geriatric clinic of National Institute of Mental Health. Data will be collected for six months once the institutes have given their clearance.

Procedure: The psychoeducational intervention for family caregivers of dementia will be provided by the Psychoeducational Intervention Group. The group will be led by two trainers from Dementia Academy of Bangladesh. Weekly one session will be carried out on the clinic day. Each participant will get four sessions, one hour each. Four domains will be discussed throughout the sessions. The basic concept of dementia, pathophysiology and types will be discussed in the first session. Pharmacological and non-pharmacological management will be discussed in the second session. The third session will consist of physiological and behavioral changes in dementia and ways to address them. In the last session care of the person with dementia will be discussed and the care of the caregiver will also be addressed. Stress management techniques and role play will be incorporated in the last session. At the end of each session caregivers will be invited to report their experiences.

Instruments: A semi structured questionnaire will be provided to the caregivers with the aim of obtaining the sociodemographic Introduction and their relationship with the PwD. In order to assess caregiver burden, a culturally adapted and validated Bangla version of Zarit Burden Interview will be applied at the beginning and after completion of four sessions.

126

Statistical analysis: The data obtained from the instruments will be analyzed by SPSS. **Ethical issues:** The project will be submitted to the ethical committee of BSMMU and NIMH. Each participant will sign an informed consent form in order to ensure his/her rights to voluntary participation to and withdrawal from the study.

Keywords: Prospective Studies; Caregivers; Tertiary Care Centers; Dementia; Bangladesh

Prevention of Childhood Obesity Through Sustained Interventions

Umme Haney (uhaney89@gmail.com)[1], Fariha Haseen[1], Syed Shariful Islam[1]

[1]*Department of Public Health and Informatics, Bangabandhu Sheikh Mujib Medical University*

Childhood obesity is one of the most serious public health challenges of the 21st century. Childhood obesity is becoming an epidemic globally as well as in many low and middle-income countries like Bangladesh, particularly in urban settings.

Obesity and overweight are now the fifth leading global risk factor for mortality. Obesity has negative health impacts in childhood, as well as in the long term. In addition to a higher risk of obesity and non-communicable diseases (NCDs) later life, affected children experience adverse outcomes such as diabetes mellitus, cardiovascular diseases, gallbladder diseases and hormone sensitive and gastrointestinal cancers as well as high risk for some non-fatal conditions like back pain, arthritis, infertility and poor psychosocial functions including social isolation, peer problems etc. Unfortunately, there is a scarcity of credible data on these issues that can be used for policy and programmatic development. SDG target 3.4 commits the world to reducing premature deaths from non-communicable diseases by one-third by 2030, including through prevention of obesity. With increasing awareness of its impact on health, finances and community at large, it has come to the forefront for scientific research and development of health plans. Behavioral changes and lifestyle modifications are the primary tools for reducing obesity. The need for better strategies and sustained interventions to manage obesity should be recognized by the health care system. Sustained interventions are likely to be required at several levels – at an individual level in schools and community settings to affect behavioral change and in sector changes within agriculture, food manufacturing, education, transportation, and urban planning.

Interventions for childhood obesity prevention need to be part of existing plans and programmes that include tightened regulation of advertising of unhealthy foods and drinks targeted at children, improved access to parks and playgrounds, food reformulation policies and price interventions to promote a healthy lifestyle.

Keywords: Pediatric Obesity; Noncommunicable diseases

SPONSORS

We express heartiest gratitude to our
Platinum sponsor

We express heartiest gratitude to our
Diamond sponsor

unicef

Globally The global burden of non-communicable diseases (NCDs) continues to increase, with the greatest burden occurring in developing countries causing significant health, social and economic consequences[1]. Bangladesh is no different to that, as NCDs are estimated to account for more than 70 percent of all deaths in 2017[2]. output. NCDs are also mentioned in the Sustainable Development Goals, including Target 3.4 (by 2030 reduce by onethird pre-mature mortality from NCDs through prevention and treatment, and promote mental health and wellbeing).

Whilst evidence indicates that significant risk factors for NCDs during adulthood can be mitigated with appropriate approaches early in life, NCD prevention before conception and during pregnancy, infancy, childhood and adolescence is neglected in global public health policy, expenditure and discourse.

UNICEF is one of the UNIATF (United Nations Interagency task force on prevention and control of non-communicable diseases (NCDs) which is the collaboration among UN systems for supporting governments in term of NCDs and mental health conditions.

Childhood and adolescence are also periods when behaviors associated with NCD risk are adopted, including substance abuse, unhealthy diets and sedentary lifestyles especially in LMICs and many grow up in environments not conducive to adoption of healthy lifestyles.

In recent years, UNICEF has developed approaches to Health System Strengthening (HSS) and Universal Health Coverage (UHC) that are critical for tackling NCDs, such as enhancing equal access to prevention, screening and care and mitigating the socioeconomic impacts of ill health. However, given that risk factors that drive NCDs are primarily outside of the health system (such as tobacco use, harmful use of alcohol, unhealthy diet, physical inactivity and air pollution), multisectoral approaches including regulatory and economic policies (e.g. marketing restrictions and tax measures on unhealthy products) and stimulation of demand / uptake at community level are further needed to comprehensively address NCDs and associated risks.

TARGET 3·4

REDUCE MORTALITY FROM NON-COMMUNICABLE DISEASES AND PROMOTE MENTAL HEALTH

---

[1] a systematic analysis for the Global Burden of Disease Study 2017. The Lancet.
[2] WHO country profile

The UNICEF Strategy for Health 2016–2030 includes four areas for action that provide Country Offices with a strategic framework that can be applied to NCD prevention across different contexts

Table: Four Action Areas of the UNICEF strategy for health 2013-2030

Advocate for every child's right to health	Influence government policies	Strengthen service delivery	Empower communities
■ Support data capture, evidence generation and use ■ Engage with partners ■ Expand available resources	■ Support evidence-based policymaking and financing ■ Promote scale-up effective and interventions/innovations ■ Share knowledge & promote south-south exchange	■ Build capacity of management and health providers ■ Support program, including service provision in particular at community level and in emergencies ■ Strengthen supply chain systems	■ Engage for social and behavior change ■ Generate demand ■ Strengthen accountability

UNICEF has recently initiated its' new five year country program with the government of Bangladesh, which prioritizes resilient health system building for delivery of quality ESP mainstreaming NCD services particularly focusing on pediatric NCD services.

Under the new initiative on Paediatrc NCDs, UNICEF will work with the MOHFW to:

■ Conduct survey to understand the current situation and burden of pediatric NCDs in Bangladesh
■ Formulate strategies, guidelines and tools for mainstreaming pediatric NCDs in the existing ESP service delivery system
■ Strengthen health system for early identification and management of pediatric NCDs
■ Improve data analytics for pediatric NCDs in the existing HMIS for more data driven solutions and actions

Activities

Rhuematic heart disease	Type 1 Diabetes mellitus	Asthma	Sickle cell disease
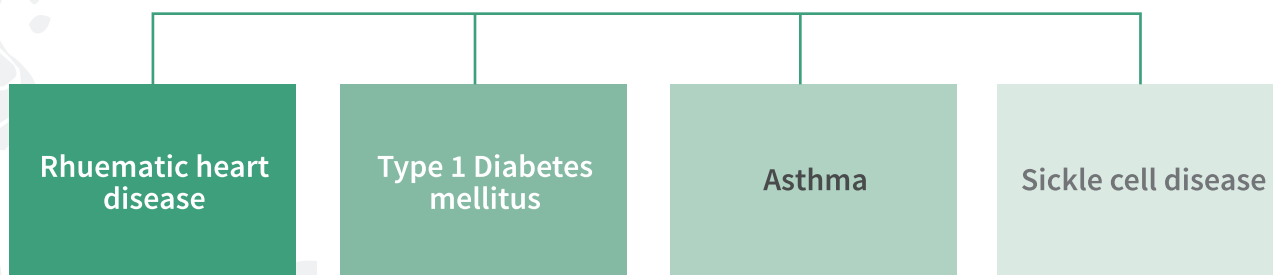
DocTime™
Healthcare Anytime Anywhere

DocTime is a Leading Digital Healthcare Provider in Bangladesh.

DocTime is on a mission to improve the health and wellbeing of the country by providing accessible and affordable health services through advanced technology.

On-demand Video Consultation

Electronic Prescription

Medicine Delivery

Pathology Tests from Home

Electronic Health Records

Medicine Reminder

" *DocTime leverages patient health data to support medical research and clinical trials* "

5,00,000+
DocTime app downloads

★ 4.7
Play store ratings

850+
Approved doctors

1.5 million
Patients reach

1,30,000+
Successful video consultations

www.doctime.com.bd

We express heartiest gratitude to our
Silver sponsors

أصدقاء مرضى السرطان
Friends Of Cancer Patients
We're With You نحنُ معكـم
United Arab Emirates الامارات العربية المتحدة

ACIDITY GONE

Ma✗pro®
esomeprazole

Capsule

IN **SMALLEST VEGETABLE** SHELL

LOW MOISTURE CONTENT, **HIGHER EFFICACY**

NATURAL SOURCE, **WELL ACCEPTED BY ALL**

RENATA LIMITED

Please "Like" us on **facebook**. http://www.facebook.com/RenataLimited

nuVISTA
PHARMA

Nuvista Pharma Limited

A subsidiary of **BEXIMCO PHARMACEUTICALS LTD.**

CARYON™

Dydrogesterone 10 mg Tablet

A proven **safeguard**

against **Threatened or Habitual abortion**

TRAUMA CENTER
A Specialized Orthopedic Hospital
& Diagnostic Center

PROGRAM

1ST NATIONAL NCDs CONFERENCE BANGLADESH

Program Schedule
26th January 2022- 28th January 2022

09:00 AM – 10:30 AM	10:30 AM – 12:00 PM	12:00 PM – 01:30 PM	01:30 PM- 02:30 PM	02:30 PM – 04:00 PM	04:00 PM – 05:30 PM	05:30 PM – 07:00 PM	07:00 PM – 08:30 PM
Session Name	Session Name	Session Name		Session Name	Session Name	Session Name	Session Name
Day 1 | 26th January 2022							
Morning Inauguration Ceremony of the Conference	Day 1 Special Session 1 Organized by icddr,b	Day 1 Special Session 1 Organized by BES		Day 1 Scientific Session 2	Day 1 Special Session 2 Organized by UNICEF	Evening Inauguration Ceremony of the Conference	
Day 2 | 27th January 2022							
Second Day Morning Inauguration Ceremony of the Conference	Day 2 Scientific Session 1	Day 2 Scientific Session 3		Day 2 Scientific Session 5	Day 2 Scientific Session 7	Day Closing Ceremony	Day 2 Virtual Session 1 Organized by SEAR NCD
	Day 2 Scientific Session 2	Day 2 Scientific Session 4		Day 2 Scientific Session 6	Day 2 Special Session 2 Organized by BHRF		Day 2 Virtual Session 2 Organized by FOCP
Day 3 | 28th January 2022							
Third Day Morning Inauguration Ceremony of the Conference	Day 3 Special Session 1 Organized by ORBIS	Day 3 Special Session 2 Organized by UNFPA		Day 3 Special Session 3 Organized by BSMMU	Day 3 Special Session 4 Organized by OGSB	Closing Ceremony of the Conference/Lifetime Contribution for NCDs Award Giving Ceremony	

Details of the Scientific and Special Sessions

DAY 1 | January 26, 2022

Day 1 Special Session 1	Organized by icddr,b	
Session Date	January 26, 2022	
Session Time	10:30 AM – 12:00 PM	
Delivery	**Name of the Speakers and Affiliation**	**Presentation title**
Welcome Speech by Session Chair (05 Min)	Dr. Tahmeed Ahmed, Executive Director, icddr,b	
International Speaker (10 Min)	Dr. Arun P Jose, Deputy Director, Centre for Digital Health, Public Health Foundation of India	
Speaker-1 (10 Min)	Dr. Aliya Naheed, Scientist, Head, Initiative for NCD, icddr,b	**ABS-148:** A Community-Based Intervention for Managing Hypertension in Rural South Asia
Speaker-2 (10 Min)	Dr. Rubhana Raqib, Senior Scientist, IDD, icddr,b	**ABS-136:** Climate Change, Environmental Exposure and Risk Factors for Developing Cardiometabolic Diseases
Speaker-3 (10 Min)	Dr. Afrin Iqbal, Maternal and Child Health Divission, icddr,b	**ABS-120:** Demographic, Socioeconomic, and Biological Correlates of Hypertension in an Adult Population: Evidence from the Bangladesh Demographic and Health Survey 2017–18
Speaker-4 (10 Min)	Anowar Hossain, Founder & CTO, DocTime Bangladesh	**ABS-135:** DocTime: A digital telehealth initiative in Bangladesh
Panel Speaker (10 Min)	Dr. Mostofa Zaman, Adviser, Research and Publication at World Health Organization	
Open Discussion & Q/A Session (10 Min)		
Session Remarks by Co-Chair (05 Min)	Professor Kishwar Azad, Project Director, Perinatal Care Project and Professor of Pediatrics, BIRDEM & Ibrahim Medical college	
End Remarks by Session Chair (05 Min)	Dr. Tahmeed Ahmed, Executive Director, icddr,b	

Day 1 Special Session 2	Bangladesh Endocrine Society	
Session Date	January 26, 2022	
Session Time	12:00 PM – 01:30 PM	
Delivery	Name of the Speakers	Affiliation
Welcome Speech by Session Chair (05 Min)	Prof. S M Ashrafuzzaman,	President, Bangladesh Endocrine Society (BES), Dhaka, Bangladesh.
Speaker-1 (15 Min)	Dr. Tahniyah Haq	International Affairs Secretary and Assistant Professor, BSMMU; International Affairs, Bangladesh Endocrine Society (BES), Dhaka, Bangladesh.
Speaker-2 (20 Min)	Dr. Marufa Mustari	Office Secretary BES and Consultant Endocrinologist, Dept. of Endocrinology, BSMMU
Speaker-3 (30 Min)	Dr Shahjada Selim	General Secretary BES and Associate Professor, Dept. of Endocrinology, BSMMU,
Open Discussion & Q/A Session (15)	Panelists: 1. Prof Md Faruque Pathan	Chief Patron BES and Director, BIRDEM Academy
	Panelists: 2. Prof Muhammad Hafizur Rahman	President Elect BES and Chief Consultant, United Hospital,
End Remarks by Session Chair (05 Min)	Prof. S M Ashrafuzzaman,	President, Bangladesh Endocrine Society (BES), Dhaka, Bangladesh.
Moderator	Dr Chowdhury Fiasal Md Monzurur Rahim	Bangladesh Endocrine Society (BES), Dhaka, Bangladesh.
	Dr Md Sohel Rana	Bangladesh Endocrine Society (BES), Dhaka, Bangladesh.
Rapporteur	Dr. Tahmina Ferdousi	Bangladesh Endocrine Society (BES), Dhaka, Bangladesh.

Day 1 Scientific Session 1		
Session Date	January 26, 2022	
Session Time	02:30 PM – 04:00 PM	
Delivery	**Name of the Speakers and Affiliation**	**Presentation title**
Welcome Speech by Session Chair (05 Min)	Dr. Zeba Mahmud, Country Manager, Alive & Thrive	
International Speaker (10 Min)	D. Sheikh Mohammed Shariful Islam, National Heart Foundation Senior Research Fellow and NHMRC Emerging Leadership Fellow, Deakin University, Australia	
Speaker-1 (10 Min)	Nusrat Hossain Sheba, Lecturer, Bangladesh University of Health Sciences (BUHS)	**ABS-062:** Assessment of Lifestyle Practices and Chronic Diseases among Healthcare Professionals at Selected Hospitals in Gazipur and Dhaka, Bangladesh
Speaker-2 (10 Min)	Saadia Noor, PhD Fellow, Bangladesh University of Professionals (BUP)	**ABS-024:** Digital Health Risk of Primary School Students: Dhaka City Perspectives
Speaker-3 (10 Min)	Tanmoy Sarker, BRAC James P Grant School of Public Health, BRAC University	**ABS-052:** Service availability and readiness of health facilities for non-communicable disease in two sub-districts of Bangladesh
Speaker-4 (10 Min)	M M Alamgir Siddique Abbasi, Institute of Biological Sciences, University of Rajshahi	**ABS-058:** Oral Health and Knowledge of Oral Care Among Cancer Patients During Radio or Chemotherapy
Open Discussion & Q/A Session (20)		
Session Chief Guest (10 Min)	Dr. Abu Jamil Faisel, Chairman & Treasurer, Health21	
End Remarks by Session Chair (05 Min)	Dr. Zeba Mahmud, Country Manager, Alive & Thrive	
Moderator	Monaemul Islam Sizear, Senior Program Analyst, ThinkWell Global	
Rapporteur	Dr. Noshin Farzana, Research Investigator, icddr,b	

Day 1 Special Session 3	Organized by UNICEF	
Session Date	January 26, 2022	
Session Time	04:00 PM – 05:30 PM	
Delivery	**Name of the Speakers**	**Affiliation**
Welcome Speech by Session Chair (05 Min)	Prof. Dr. Md. Sanowar Hossain	Former Chairman, Bangladesh Atomic Energy Commission
International Speaker (10 Min)	Prof. Dr. Brian Godman	Strathclyde Institute of Pharmacy and Biomedical Sciences, University of Strathclyde, Glasgow
Speaker-1 (10 Min)	Dr. Bedowra Zabeen	Consultant Pediatric Endocrinologist, Department of Pediatrics, Coordinator, CDiC Pediatric Diabetes Center, BIRDEM
Speaker-2 (10 Min)	Dr. Pyae Phyo Than Cho	Health Officer, UNICEF
Speaker-3 (10 Min)	Dr. Sheikh Daud Adnan	Hospitals and Clinics, Directorate General of Health Services, Mohakhali, Dhaka. Transfusion Medicine Specialist Joint Secretary, AATM International Secretary, AATM Bangladesh Chapter
Speaker-4 (10 Min)	TBA	TBA

<div align="center">

Open Discussion & Q/A Session (20)

</div>

Session Chief Guest (10 Min)	Dr. A.E. Md Muhiuddin Osmani	Additional Secretary, Ministry of Women and Children Affairs and Former Division Chief, Planning Commission, Ministry of Planning
End Remarks by Session Chair (05 Min)	Prof. Dr. Md. Sanowar Hossain	Former Chairman, Bangladesh Atomic Energy Commission
Moderator	Margub Aref Jahangir	Health Officer, Unicef Bangladesh
Rapporteur	Dr. Md. Abdur Razzaqul Alam	National Consultant, Unicef Bangladesh

DAY 2 | January 27, 2022

Day 2 Scientific Session 1		
Session Date	January 27, 2022	
Session Time	10:30 AM – 12:00 PM	
Delivery	**Name of the Speakers and Affiliation**	**Presentation title**
Welcome Speech by Session Chair (05 Min)	Prof. Dr. Md. Rabiul Haque, Chairman, Department of Population Science, University of Dhaka	
International Speaker (10 Min)	Dr. Kingsley Agho, Associate Professor, School of Health Science, Western Sydney University	**ABS-119:** The Status of Non-Communicable Diseases surveillance in Nigeria
National Speaker (10 Min)	Prof. Dr. Nazrul Islam, Professor, Department of Rheumatology, BSMMU	**ABS 094:** Prevalence of Osteoporosis and Associated Factors in Patients Attending a Rheumatology Clinic- Study from a Developing Country
Speaker-1 (10 Min)	Sunjida Binta Ali, Centre for Diarrhoeal Disease Research, Bangladesh (icddr,b)	**ABS-142:** Pattern of anti-hypertensive and anti-diabetic drug use and treatment cost in diabetic and hypertensive patient in Bangladesh: A cross-sectional Study
Speaker-2 (10 Min)	Bilkis Banu, Associate Professor, Department of Public Health, Northern University Bangladesh	**ABS-008:** Comparative effect of traditional versus communication technology-based health educational intervention focusing on diabetes in Bangladesh: a randomized controlled trial
Speaker-3 (10 Min)	Nabhira Aftabi Binte Islam, Marks Medical College (Dental Unit), Dhaka	**ABS-035:** Food Consumption in an English Medium School Children During COVID-19
Speaker-4 (10 Min)	Khandakar Fatema, Department of Public Health and Informatics (DPHI), Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka, Bangladesh	**ABS-036:** Transcultural Adaptation of Bengali version of the International Physical Activity Questionnaire-Short Form Among Healthy Adult Population of Bangladesh
Open Discussion & Q/A Session (20 Min)		
Session Chief Guest (10 Min)	Dr. Mahfuzar Rahman, Country Director, Pure Earth, Bangladesh	
End Remarks by Session Chair (05 Min)	Prof. Dr. Md. Rabiul Haque, Chairman, Department of Population Science, University of Dhaka	
Moderator	Dr. Mithila Faruque, Associate Professor, Bangladesh University of Health Science	
Rapporteur	Saimul Islam, Research Investigator, icddrb	

Day 2 Scientific Session 2	
Session Date	January 27, 2022
Session Time	10:30 AM – 12:00 PM

Delivery	Name of the Speakers and Affiliation	Presentation title
Welcome Speech by Session Chair (05 Min) (Replaced)	Prof. (Dr.) A.M.S.M Sharfuzzaman, Director (Hospital), Popular Medical College	
International Speaker (10 Min)	Dr. Chowdhury H. Ahsan, Clinical Professor of Medicine, University of Nevada, USA	
National Speaker (10 Min)	Prof. Dr. S M Saidur Rahman Mashreky, Director, Public Health and Injury Prevention, Centre for Injury Prevention, Health Development and Research, Bangladesh (CIPRB)	
Speaker-1 (10 Min)	A. B. M. Rasheduzzaman, Bangladesh Center for Communication Programs (BCCP)	**ABS-003:** Community Perception on Non-Communicable Diseases Risk Behavior in Bangladesh: A Qualitative Exploration
Speaker-2 (10 Min)	Mohammad Ashraful Amin, Department of Public Health, North South University	**ABS-027:** Assessment of depression and anxiety among admitted patients in a cardiology department: a cross-sectional hospital-based study in a Bangladesh population during COVID-19
Speaker-3 (10 Min)	Farzana Tamanna Ummey Shaon, Laboratory Sciences and Services Division, International Centre for Diarrhoeal Disease Research, Bangladesh (icddr,b)	**ABS-040:** Mental health and dietary practice among women with breast cancer in a tertiary hospital of Bangladesh
Speaker-4 (10 Min)	Nasrin Akter, Northern University Bangladesh, Dhaka, Bangladesh	**ABS-074:** Triggering Factors Associated with Cognitive Impairment Among Senior Citizens of Old Homes in Dhaka, Bangladesh

Open Discussion & Q/A Session (10 Min)

Session Chief Guest (10 Min)	Prof. Dr. Khan Abul Kalam Azad, Principal, Popular Medical College and Ex Principal Dhaka Medical College
End Remarks by Session Chair (05 Min)	Prof. (Dr.) A.M.S.M Sharfuzzaman, Director (Hospital), Popular Medical College
Moderator	Prof. Dr. Mohamamad Mainul Islam, Professor, Department of Population Science, University of Dhaka
Rapporteur	Dr. Nabilah Ibnat Baby, Research Investigator, icddr,b

Day 2 Scientific Session 3		
Session Date	January 27, 2022	
Session Time	12:00 PM – 01:30 PM	
Delivery	**Name of the Speakers and Affiliation**	**Presentation title**
Welcome Speech by Session Chair (05 Min)	Prof. Dr. S M Saidur Rahman Mashreky, Director – Public Health and Injury Prevention, Centre for Injury Prevention, Health Development and Research, Bangladesh (CIPRB)	
International Speaker (10 Min)	Dr. Hampus Holmer, Physician-Scientist, Karolinska Institute	**ABS-06:** Implementation of Non-Communicable Disease Policies From 2015 to 2020: A Geopolitical Analysis of 194 Countries
Speaker-1 (10 Min)	Dr. H. M. Miraz Mahmud, Bangladesh Center for Communication Programs (BCCP)	**ABS-006:** Influence of Parental Tobacco Use on Initiation and Use of Tobacco among their Children
Speaker-2 (10 Min)	Dr. Shaikh Kaniz Sayeda, Daffodil International University, Dhaka	**ABS-042:** A Study of- breast cancer related knowledge, attitude and practice of breast self-examination among female respondents attending in a breast cancer awareness program in a private hospital at Dhaka city
Speaker-3 (10 Min)	Aysha Anan, Centre for Non-communicable Diseases and Nutrition (CNCDN), BRAC James P Grant School of Public Health, BRAC University	**ABS-043:** Patients' satisfaction in a proof-of-concept study of training and digital care coordination for hypertension and type-2 Diabetes management in the primary health care system in Bangladesh
Speaker-4 (10 Min)	Nantu Chakma, Initiative for Non Communicable Diseases, HSPSD, icddr,b, Dhaka, Bangladesh	**ABS-112:** Impact of training on Model pharmacy and model medicine shop among drug dispensers in Bangladesh and barriers towards sustainability: A mixed Method study
Open Discussion & Q/A Session (20 Min)		
Session Chief Guest (10 Min)	Dr. Mohammad Mostafa Zaman, Adviser, Research and Publication, World Health Organization	
End Remarks by Session Chair (05 Min)	Prof. Dr. S M Saidur Rahman Mashreky, Director – Public Health and Injury Prevention, Centre for Injury Prevention, Health Development and Research, Bangladesh (CIPRB)	
Moderator	Dr. ABM Alauddin Chowdhury, Associate Professor and Head, Department of Public Health, Daffodil International University	
Rapporteur	Dr. Sifat Sheikh Parveen, Research Investigator, icddr,b	

Day 2 Scientific Session 4		
Session Date	January 27, 2022	
Session Time	12:00 PM – 01:30 PM	
Delivery	Name of the Speakers and Affiliation	Presentation title
Welcome Speech by Session Chair (05 Min)	Prof. Dr. Md. Mizanur Rahman, Director, National Institute of Kidney Diseases & Urology (NIKDU)	
International Speaker (10 Min)	Chalchisa Tugu, PhD Fellow, University of Wollongong, Australia	
Speaker-1 (10 Min)	Professor Jannatul Ferdous, Bangabandhu Sheikh Mujib Medical University	**ABS-010:** Malnutrition in all its forms and associated factors affecting the nutritional status of adult rural population in Bangladesh: results from a cross-sectional survey
Speaker-2 (10 Min)	Abhijeet Roy, Centre for Non-communicable Diseases and Nutrition, BRAC James P Grant School of Public Health, BRAC University, Dhaka, Bangladesh	**ABS-050:** Status and correlates of depression and anxiety among slum-dwelling mothers of children aged <2 years in Bangladesh: a cross-sectional study
Speaker-3 (10 Min)	Dr. Afsana Habib Sheuly, Helen Keller International, Bangladesh	**ABS-002:** Prevalence of type 2 diabetes and pre-diabetes among pulmonary and extrapulmonary tuberculosis patients of Bangladesh: A cross-sectional study
Speaker-4 (10 Min)	Kasrina Azad, Institute for developing Science and Health initiatives (ideSHi), Matikata, ECB Chattar, Kalshi Road	**ABS-053:** Detection of Thalassemia carrier prevalence through awareness and free screening program
Open Discussion & Q/A Session (20)		
Session Chief Guest (10 Min)	Prof. Dr. Kamrul Hasan Khan, Former Vice Chancellor, Bangabandhu Sheikh Mujib Medical University Hospital (BSMMU)	
End Remarks by Session Chair (05 Min)	Prof. Dr. Md. Mizanur Rahman, Director, National Institute of Kidney Diseases & Urology (NIKDU)	
Moderator	Prof. Dr. Dipak Kumar Mitra, Professor, Department of Public Health, North South University	
Rapporteur	Dr. Mir Nabila Ashraf, Senior Research Officer, icddr,b	

Day 2 Scientific Session 5		
Session Date	January 27, 2022	
Session Time	02:30 PM – 04:00 PM	
Delivery	**Name of the Speakers and Affiliation**	**Presentation title**
Welcome Speech by Session Chair (05 Min)	Dr. Shaikh Abdullah Al Mamun, Deputy Registrar, Bangabandhu Sheikh Mujib Medical University (BSMMU)	
International Speaker (10 Min)	Dr. Amanj Kurdi, Senior Lecturer, Strathclyde Institute of Pharmacy and Biomedical Sciences, University of Strathclyde, Glasgow	**ABS-069:** Use of Drug Utilisation Data and Mixed-Method Approach to Evaluate the Impact of Healthcare Policies to Optimise NCD Management: Lessons from A UK-Based Study
National Speaker (10 Min)	Dr. A S Nurullah Awal, Health Advisor, WaterAid Bangladesh	**ABS-076:** How WASH Improvement Helps Attaining Universal Health Coverage (UHC)
Speaker-1 (10 Min)	Shahnaz Sharmin, Centre for Non communicable Diseases and Nutrition, BRAC James P Grant School of Public Health, BRAC University, Dhaka, Bangladesh	**ABS-051:** Status of consumption of unhealthy foods and factors associated with unhealthy food consumption among 20-59 years old women in Bangladesh
Speaker-2 (10 Min)	Dr. Shapla Khatun, Birdem General Hospital	**ABS-134:** LOW DOSE ASPIRIN IN PREVENTION OF PREECLAMPSIA:A RANDOMISED CONTROL TRIAL
Speaker-3 (10 Min)	Dr. Noshin Farzana, Initiative for Non Communicable Diseases, HSPSD, icddr,b, Dhaka, Bangladesh	**ABS-087:** The pattern of diabetic care among the ambulatory patients attending tertiary care hospitals in Bangladesh across gender and socio-economic status
Speaker-4 (10 Min)	Sharmin Akhter Zahan, Digital Healthcare Solutions of Grameen Telecom Trust	**ABS-111:** Effectiveness of Digitally enabled Patient Support Program (PSP) through Patient Empowerment for Comprehensive Management of Diabetes
Open Discussion & Q/A Session (20 Min)		
Session Chief Guest (10 Min)	Prof. MKI. Qayyum Chowdhury, Director General, BIRDEM General Hospital	
End Remarks by Session Chair (05 Min)	Dr. Shaikh Abdullah Al Mamun, Deputy Registrar, Bangabandhu Sheikh Mujib Medical University (BSMMU)	
Moderator	Dr. Md.Tajuddin Sikder, Associate Professor & Chairman, Department of Public Health and Informatics, Jahangirnagar University	
Rapporteur	Dr. Ammatul Ferdousi, Research Investigator, icddr,b	

Day 2 Scientific Session 6		
Session Date	January 27, 2022	
Session Time	02:30 PM – 04:00 PM	
Delivery	**Name of the Speakers and Affiliation**	**Presentation title**
Welcome Speech by Session Chair (05 Min)	Prof. Nazmul Ahsan, Professor, Bangabandhu Sheikh Mujib Medical University (BSMMU)	
International Speaker (10 Min)	Dr. Zumin Shi, Professor, Human Nutrition Department College of Health Sciences Qatar University	**ABS-108:** Ultra-Processed Food Consumption Associated with Incident Hypertension Among Chinese Adults-Results from China Health and Nutrition Survey 1997-2015
Speaker-1 (10 Min)	Md. Azad Hossain, Institute of Biological Sciences, University of Rajshahi	**ABS-055:** Evaluation of Peripheral Neuropathy and Its Related Risk Factors in Type-2 Diabetic Patients
Speaker-2 (10 Min)	Palash Chandra Banik, Department of Noncommunicable Diseases, Bangladesh University of Health Sciences (BUHS), Dhaka, Bangladesh	**ABS-075:** Baseline prevalence of noncommunicable diseases risk factors: overall Outcome from the application of WHO PEN interventions
Speaker-3 (10 Min)	F Aaysha Cader, Ibrahim Cardiac Hospital & Research Institute, Dhaka, Bangladesh	**ABS-080:** Impact of the COVID-19 pandemic on cardiology services in the 2nd year at a tertiary cardiac centre in Dhaka
Speaker-4 (10 Min)	Saimul Islam, Initiative for Non Communicable Diseases, HSPSD, icddr,b, Dhaka, Bangladesh	**ABS-115:** Burden of diabetic retinopathy among ambulatory patients treated at medicine OPDs in hospitals in Bangladesh
Open Discussion & Q/A Session (20 Min)		
Session Chief Guest (10 Min)	Prof. Atiqul Islam, Professor of Medicine, Chittagong Medical College	
End Remarks by Session Chair (05 Min)	Prof. Nazmul Ahsan, Professor, Bangabandhu Sheikh Mujib Medical University (BSMMU)	
Moderator	Dr. Md. Rassell, PS-1 to Vice Chancellor, Bangabandhu Sheikh Mujib Medical University (BSMMU)	
Rapporteur	Nantu Chakma, Senior Research Officer, icddr,b	

Day 2 Scientific Session 7		
Session Date	January 27, 2022	
Session Time	04:00 PM – 05:30 PM	
Delivery	**Name of the Speakers and Affiliation**	**Presentation title**
Welcome Speech by Session Chair (05 Min)	Dr. Aftab Uddin, Chairperson, Public Health Foundation, Bangladesh	
International Speaker (10 Min)	Prof. K. Srinath Reddy, President, Public Health Foundation of India	
Speaker-1 (10 Min)	Amina Rownaq, Institute of Biological Sciences, University of Rajshahi, Bangladesh	**ABS-057:** Analysis of Biomarker Signature and Molecular Pathway in Small Cell Lung Cancer:A Systematic and Bioinformatics Approach
Speaker-2 (10 Min)	Dr. Mir Nabila Ashraf, Initiative for Non Communicable Diseases, HSPSD, icddr,b, Dhaka, Bangladesh	**ABS-116:** Health seeking behavior of the aging population and cost of health care in Bangladesh
Speaker-3 (10 Min)	Dr. Sharmin Ahmed, BRAC	**ABS-021**: Assessment of perceived stress and stressors among medical students: A cross sectional study in Dhaka, Bangladesh
Speaker-4 (10 Min)	Md. Tamjid Ali, Department of Physical Medicine and Rehabilitation, Rajshahi Medical College Hospital, Rajshahi	**ABS-101:** Outcome of C-arm guided Epidural Steroid Injection in Patients with Prolapsed Lumbar Intervertebral Disc (PLID) with Radiculopathy
Open Discussion & Q/A Session (20 Min)		
Session Chief Guest (10 Min)	Prof. Dr. Kanak Kanti Barua	Professor Department of Neurosurgery, Bangabandhu Sheikh Mujib Medical University (BSMMU)
End Remarks by Session Chair (05 Min)	Dr. Aftab Uddin	Chairperson, Public Health Foundation, Bangladesh
Moderator	Dr. Md. Mofijul Islam Bulbul	Executive Director, Public Health Foundation Bangladesh
Rapporteur	Sunjida Binta Ali	Senior Research Officer, icddr,b

Day 2 Virtual Session 1	Organized by SEAR NCDs	
Session Date	January 27, 2022	
Session Time	07:00 PM – 08:30 PM	
Delivery	**Name of the Speakers**	**Affiliation**
Welcome Speech by Session Chair (05 Min)	Prof. Dr. Abhinav Vaidya	Governing Board (GB) Member, SEAR NCD Alliance, Professor of Community Medicine; Kathmandu Medical College Public Limited, Kathmandu, Nepal
International Speaker (10 Min)	Dr R Kesavan	Technical Officer, NCD SEARO, WHO SEARO
Speaker-1 (10 Min)	Dr R Guha Pradeepa	Coordinator, SEAR NCD Alliance, Sr. Scientist & Head, Research Operations, Madras Diabetes Research Foundation, India
Speaker-2 (10 Min)	Dr. Nanda Fauziyana	Governing Board (GB) Member, SEAR NCD Alliance, NCDA Indonesia
Speaker-3 (10 Min)	Prof Sohel Choudhury	Governing Board (GB) Member, SEAR NCD Alliance, Bangladesh Network for NCD Control and Prevention (BNNCP)
Speaker-4 (10 Min)	Dr. Tin Maung Htwe	Governing Board (GB) Member, SEAR NCD Alliance, Myanmar NCD Alliance
Open Discussion & Q/A Session (20 Min)		
Session Chief Guest (10 Min)	Dr Manju Rani	Regional Advisor (NCD Governance, Policy, and Surveillance), South East Asia Regional Office- World Health Organization
End Remarks by Session Chair (05 Min)	Prof. Dr. Abhinav Vaidya	
Moderator	Ms Mandy Thoo	Governing Board (GB) Member, SEAR NCD Alliance, Manager, Health Education, Literacy Promotion and Policy here at National Cancer Society Malaysia

Day 2 Virtual Session 2	Organized by FOCP	
Session Date	January 27, 2022	
Session Time	07:00 PM – 08:30 PM	
Delivery	**Name of the Speakers**	**Affiliation**
Welcome Speech by Session Chair (05 Min)	Dr. Sadhana Bhagwat	Team Leader-NCD, World Health Organization
Speaker-1 (15 Min)	Dr. Ibtihal Fadhil	Founder & Chair, NCD Alliance, Eastern Mediterranean
Speaker-2 (10 Min)	Yogesh Jain	NCDI Alliance Commission
Speaker-3 (10 Min)	Dr. Manuel Carballo	
Speaker-4 (10 Min)	George Msengi	
Speaker-5 (10 Min)	Dr. Lambert Tetteh Appiah	
Speaker-6 (10 Min)	Dr. Philip Joseph	
Speaker-7 (10 Min)	Prof. Dr. Malay Kanti Mridha	Professor, BRAC James P Grant School of Public Health of BRAC University
Open Discussion & Q/A Session (20 Min)		
Session Chief Guest (10 Min)	Dr. S M Mustafizur Rahman	Line Director, National Nutrition Service (NNS), MoHFW
End Remarks by Session Chair (05 Min)	Dr. Sadhana Bhagwat	
Moderator	Dr. Shahin Akter	Technical Director, Eminence Associates for Social Development
Rapporteur	Farihin Sultana	Business Development Officer, Eminence Associates for Social Development

DAY 3, January 28, 2022

Day 3 Special Session 1	Organized by ORBIS	
Session Date	January 28, 2022	
Session Time	10:30 AM – 12:00 PM	
Delivery	**Name of the Speakers**	**Affiliation**
Welcome Speech by Session Chair (05 Min)	Dr. Munir Ahmed	Country Director, ORBIS International
International Speaker (10 Min)	Prof. Dr. Prabhakaran Dorairaj	Vice President (Research and Policy) and Director, Centre for Control of Chronic Conditions, Public Health
Speaker-1 (10 Min)	Dr. Khairul Islam	Executive Director, DECF
Speaker-2 (10 Min)	Mr. Shafiqul Islam	Project Manager, DR
Speaker-3 (10 Min)	Dr. Mohammad Ariful Alam	Programme Head, BRAC
Speaker-4 (10 Min)	Dr. Arif Ul Haque	Senior Programme Manager, BRAC
Speaker-4 (10 Min)	Mr. Mahbubur Rahman	Optometrist
Open Discussion & Q/A Session (15 Min)	Dr. Lutful Husain	Associate Director, Clinical Services, Program Technology and Research

Session Chief Guest (10 Min)	Prof. A B M Abdul Hannan	Registrar, Bangabandhu Sheikh Mujib Medical University Hospital (BSMMU)
Session Panelist (5 Min)	Dr Morseda Chowdhury	Director Health, Nutrition and Population, BRAC
End Remarks by Session Chair (05 Min)	Dr. Munir Ahmed	Country Director, ORBIS International
Moderator	Mr. Mohammed Alauddin	Director of Programs, ORBIS International

Day 3 Special Session 2	**Organized by UNFPA**	
Session Date	January 28, 2022	
Session Time	12:00 PM – 01:30 PM	
Delivery	**Name of the Speakers**	**Affiliation**
Welcome Speech and Objective (5 Min)	Dr. Md. Shamsul Hoque	Line Director, MNCAH, MoHFW
Speaker-1 (10 Min)	Nabila Purno	Maternal Health Analyst, UNFPA
Speaker-2 (10 Min)	Dr. Susan Cu-Uvin	Professor, Ob-Gyn and Medicine Director, Providence/Boston Center for AIDS Research Director, Brown Global Health Initiative Brown University
Speaker-3 (15 Min)	Dr. Dewan Emdadul Hoque	Health Systems Specialist, UNFPA
End Remarks by Session Co-Chair (10 Min)	Dr. Vibhavendra S Raghuvanshi	Chief, Health, UNFPA
Panel Discussion & Q/A Session (40 Min)	Prof. Ferdousi Begum	President, OGSB
	Prof. Rowshon Ara	Former President, OGSB
	Dr. Ashrafunnessa	Focal Person, Cervical and Breast Cancer Screening Programme at BSMMU
	Prof. Sabera Khatun	Cervical & Breast Cancer Screening Programme, OGSB

Day 3 Special Session 3	Organized by Bangabandhu Sheikh Mujib Medical University (BSMMU)	
Session Date	January 28, 2022	
Session Time	02:30 PM – 04:00 PM	
Delivery	**Name of the Speakers**	**Affiliation**
Welcome Speech by Session Chair (05 Min)	Professor Abu Nasir Rizvi	Chairman, Department of Neurology, Bangabandhu Sheikh Mujib Medical University
Speaker-1 (10 Min)	Dr. Sharmin Ahmed, Resident, Department of Cardiology, BSMMU	**ABS-137:** Factors responsible for Development of Ischemic cardiomyopathy After Myocardial Infarction
Speaker-2 (10 Min)	Dr. Subash Kanti Dey, Associate Professor Dept of Neurology, BSMMU	**ABS-138:** Challenges of stroke management in Bangladesh
Speaker-3 (10 Min)	Prof. Dr MMA Shalahuddin Qusar, Professor, Department of Psychiatry, BSMMU	**ABS-117:** Mental Health Treatment GAP: Current Scenario and Future Plan
Speaker-4 (10 Min)	Dr. Shahjada Selim, Associate Professor, Department of Endocrine and Metabolic Disorders, BSMMU	**ABS-139:** Management of Diabetes in Low Resource Settings
Speaker-5 (10 Min)	Dr. Fariha Haseen, Associate Professor, Department of Public Health and Informatics (DPHI), BSMMU	ABS-140: Home Based Palliative Care for Terminally Ill Patients: Opportunities and Challenges in Bangladesh
Open Discussion & Q/A Session (20 Min)		
Session Chief Guest (10 Min)	Professor Dr Md. Sharfuddin Ahmed	Vice-Chancellor, Bangabandhu Sheikh Mujib Medical University (BSMMU)
End Remarks by Session Chair (05 Min)		
Moderator	Dr Tahniyah Haq	Assistant Processor, Department of Endocrinology, Bangabandhu Sheikh Mujib Medical University

Day 2 Special Session 4	Organized By OGSB	
Session Date	January 28, 2022	
Session Time	04:00 PM – 05:30 PM	
Delivery	Name of the Speakers	Affiliation
Welcome Speech and objective by Secretary General (03 Min)	Prof. Gulshan Ara	Secretary General, OGSB
Key note speech-I (10 min)	Prof. Rehana Perveen	Senior Oncologist, Square Hospital
Key note speech-II (International Speaker-10 Min)	Dr. Partha Basu	Deputy Head, Early Detection & Prevention Branch International Agency For Research On Cancer, World Health Organization, France
Speaker-1 (8 Min)	Prof. Sabera Khatun	Professor, Bangabandhu Sheikh Mujib Medical University Hospital (BSMMU)
Speaker-2 (8 Min)	Prof. Ashrafunnessa	Professor, Bangabandhu Sheikh Mujib Medical University Hospital (BSMMU)
Speaker-3 (8 Min)	Prof. Shahana Pervin	Professor, Cancer & Research Hospital
Open Discussion & Q/A Session (10 min)	Prof. Farhana Dewan	President Elect,OGSB
Panel Discussion-(3X6)	Prof. Begum Rokeya Anwar	Professor, Cancer & Research Hospital
	Prof. Farhat Hussain	Former Professor, Sir Salimullah MC
	Prof. Shrin Akter Begum	Prof. Obs & Gynae, Bangabandhu Sheikh Mujib Medical University Hospital (BSMMU)
	Prof. Jannatul Ferdous	Prof. Obs & Gynae, Bangabandhu Sheikh Mujib Medical University Hospital (BSMMU)
	Dr. Dewan Md. Emdadul Hoque	Health System Specialist, UNFPA Program Manager (EPI)
	Dr. Mowla Baksh Chaudhury	Program Manager, EPI
	Dr. Mahbuba Khan	BCO, WHO
Session Chief Guest (5 Min)	Prof. Robed Amin	Line Director, NCDC
Remarks by Session Chair (03 Min)	Prof. Ferdousi Begum	President, OGSB
Moderator (opening announce 1min + calling names 4min)	Prof Shaikh Zinnat Nasreen	Scientific Secretary, OGSB

CEREMONIAL SESSIONS

	1st Day Morning Inauguration				
S.L.	**Activity**	**Duration (min)**	**Name**	**Position**	**Organization**
1	Moderator		Dr. Shajada Selim	Associate Professor, Department of Endocrinology & Metabolism	Bangabandhu Sheikh Mujib Medical University Hospital (BSMMU)
2	Welcome Speech	5	Dr. Bishwajit Bhowmik	Project Director	Diabetes Association of Bangladesh (DAB)
3	Sharing Objectives of the Conference	5	Dr. Nizam Uddin Ahmed	Executive Director	Shastho Surokkha Foundation
4	Guest of Honor-1	5	Prof. Abdul Wadud Chowdhury	Professor of Cardiology	Dhaka Medical College & Hospital
5	Guest of Honor-2	5	Dr. Monika Arora	Chairperson	South East Asia Regional NCD Alliance
6	Guest of Honor-3	5	Siddika Akter	Director General	Directorate General of Nursing and Midwifery
7	Guest of Honor-4	5	Bardan Jung Rana	Representative	WHO-Bangladesh
8	Guest of Honor-5	5	Prof. Akhtar Hussain	President (Elect)	International Diabetes Federation
9	Guest of Honor-6	5	Prof. Meerjady Sabrina Flora	Additional Director General (Planning)	Directorate General of Health Services (DGHS), MoHFW
10	Special Guest-1	5	Md. Humayun Kabir	Former Secretary	Ministry of Health & Family Welfare
11	Special Guest-2	10	Maj. Gen. Mahbubur Rahman	Director General	Directorate General of Drug Administration
12	Special Guest-3	10	Prof. (Dr.) Quazi Deen Mohammed	Director	National Institute Of Neurosciences & Hospital (NINS&H)
13	Special Guest-4	10	National Prof. AK Azad Khan	President	Diabetic Association of Bangladesh (DAB)
14	Special Guest-5	10	Dr. Sayeda Zakia Noor Lipi	Member of Parliament, Kishorgonj-1	Bangladesh Parliament
15	Chief Guest	15	Dr. Shirin Sharmin Chaudhury, MP	Hon'ble Speaker	Bangladesh Parliament

1st Day Morning Inauguration

S.L.	Activity	Duration (min)	Name	Position	Organization
16	Chairman	5	Dr. Sarwar Ali	Former Secretary	Bangladesh Medical Association (BMA)

1st Day Evening Inauguration

S.L.	Activity	Duration (min)	Name	Position	Organization
1	Moderator		Dr. Aliya Naheed	Scientist & Head, Initiative for Non Communicable Diseases, HSPSD	International Centre for Diarrhoeal Disease Research, Bangladesh
2	Welcome Speech	5	Prof. Robed Amin	Line Director	NCDC, Directorate General of Health
3	Presentation on Conference Objectives	5	Dr. Taufique Joarder	Consultant	Health Workforce, WHO
4	Guest of Honor-1	5	Prof. Dr. Ahmedul Kabir	Additional Director General (Administration)	Directorate General of Health Services (DGHS), MoHFW
5	Guest of Honor-4	5	Veera Mendonca	Deputy Representative	Unicef
6	Special Guest-1	5	Dr. Sawsan As Al Madhi	Director General	Friends of Cancer Patients (FOCP)
7	Special Guest-2	5	Incumbent. Tedros Adhanom	Director General	World Health Organization (WHO)
8	Special Guest-3	5	Prof. Abul Bashar Mohammed Khurshid Alam	Director General	Directorate General of Health Services (DGHS), MoHFW
9	Special Guest-4	10	Prof. Dr. Md. Sharfuddin Ahmed	Hon'ble Vice Chancellor	Bangabandhu Sheikh Mujib Medical University Hospital
10	Special Guest-5	10	Robert Chatterton Dickson	High Commissioner	Embassy of UK
11	Special Guest-6	10	Mr. Lokman Hossain Miah	Secretary	Directorate General of Health Services
12	Special Guest-7	10	Prof. Dr. Ruhal Haque, MP	Member of Parliament, Satkhira-3	Bangladesh National Parliament

1st Day Evening Inauguration

S.L.	Activity	Duration (min)	Name	Position	Organization
13	Chief Guest	15	Mr. Zahid Malek, MP	Hon'ble Minister	Ministry of Health and Family Welfare (MoHFW)
14	Chairman	5	Prof. Dr. Shah Monir Hossain	President	Bangladesh Non Communicable Diseases Forum (BNCDF)

2nd Day Morning Inauguration

S.L.	Activity	Duration (min)	Name	Position	Organization
1	Moderator		Dr. Fariha Haseen	Associate Professor	Department of Public Health & Informatics, Bangabandhu Sheikh Mujib Medical
2	Welcome Speech	5	Dr. Munir Ahmed	Country Director	Orbis International
3	Guest of Honor-1	5	Prof. John Wilding	President	World Obesity Federation
5	Guest of Honor-2	5	Prof. Jo Ivey Boufford	President	International Society for Urban Health (ISUH)
6	Guest of Honor-3	5	Prof. Anil D'Cruz	President	Union for International Cancer Control (UICC)
7	Guest of Honor-4	5	Sadhana Bhagwat	Team Leader-NCD	WHO-Bangladesh
8	Guest of Honor-5	5	Sahan Ara Banu, NDC,	Director General	Directorate General of Family Planning, MoHFW
9	Guest of Honor-6	5	Dr. Mohd. Shahadt Hossain Mahmud	Director General	Health Economics Unit, MoHFW
10	Guest of Honor-7	5	Md. Abul Kalam Azad	Ex-Principal Secretary and Special Envoy	Government of Bangladesh
11	Special Guest-1	10	Prof. Dr. ABM Abdullah	Professor	University Grants Commission (UGC), Bangladesh
12	Special Guest-2	10	Prof. Shaila Khatoon	Professor	Green Life Hospital

2nd Day Morning Inauguration

S.L.	Activity	Duration (min)	Name	Position	Organization
13	Special Guest-3	10	Tanvir Sakil Joy, MP	Member of Parliament, Sirajgonj-1	Bangladesh National Parliament
14	Chief Guest	15	Sheikh Fazle Noor Taposh	Hon'ble Mayor	Dhaka South City Corporation
15	Chairman	5	Prof. Dr. Ridwanur Rahman	Professor & Head of Research	Universal Medical Research Center

2nd Day Special Media Seminar organized by Bangladesh Health Reporters Forum (BHRF)

S.L.	Activity	Duration (min)	Name	Position	Organization
1	Moderator		Rashed Rabbi	President	Bangladesh Health Reporters' Forum (BHRF)
2	Welcome Speech	5	Prof. Dr. Samiul Islam Sadi	Director (Administration)	Directorate General of Health Services (DGHS), MoHFW
3	Key Note Presentation	15	Prof. Dr. Robed Amin	Line Director	NCDC, DGHS, MoHFW
4	Panalist-1	5	Dr. Romen Raihan	Associate Professor	Department of Public Health & Informatics,
5	Panalist-2	5	Dr. Abdun Noor Tushar	Advisor	EASD
6	Panalist-3	5	Dr. Zahirul Islam	Health Advisor	SIDA
7	Panalist-4	5	Dr. Riad Mahmud	Policy and Technical Advisor	OPHNE /USAID
8	Panalist-5	5	Dr. Shafiqul Islam	Health Advisor	FCDO
9	Panalist-6	5	Prof. Dr. SM Mustafa Zaman	Cardiologist	BSMMU
10	Panalist-7	5	Toufique Maruf	Executive Editor	Times of Bangladesh
11	Panalist-8	5	Shishir Moral	Special Correspondent	The Daily Prothom Alo
12	Chief Guest	20	Dr. Hasan Mahmud, MP	Honorable Minister	Ministry of Information and Broadcasting
13	Chairman	10	Hasin Jahan	Country Representative	Water Aid-Bangladesh

2nd Day Closing Ceremony

S.L.	Activity	Duration (min)	Name	Position	Organization
1	Moderator		Dr. Helal Uddin Ahmed	Associate Professor	National Institute of Mental Health
2	Welcome Speech	5	Dr. AKM Fazlur Rahman	Executive Director	Centre for Injury Prevention, Health Development and Research, Bangladesh (CIPRB
3	Guest of Honor-1	5	Dr. Ala Alwan	Former Regional Director	World Health Organization's Eastern Mediterranean Region (EMRO)
4	Guest of Honor-2	5	Dr. Saunthari Somasundaram	Representative Regional Board Member	NCD Alliance
5	Guest of Honor-3	5	Md. Asadul Islam	Ex-Secretary	MoHFW
6	Guest of Honor-4	5	Prof. Md. Billal Alam	President	Bangladesh Society of Medicine
7	Guest of Honor-5	5	Prof. Sameena Chowdhury	Immediate Past President	OGSB
8	Guest of Honor-6	5	Prof. Dr. Quazi Tarikul Islam	Professor	Popular Medical College & Hospital, Dhaka
9	Guest of Honor-7	5	Prof. Dr. Mohammad Shahidullah	President	Bangladesh Medical & Dental Council
10	Guest of Honor-8	5	Dr. Kanta Jamil	Senior Monitoring, Evaluation and Research Advisor	OPHNE /USAID
11	Guest of Honor-9	5	Prof. Dr. Titu Mia	Principal	Dhaka Medical College
12	Special Guest-1	10	Dr. Iqbal Arselan	President	SACHIPA
13	Special Guest-2	10	Prof. Dr. Faridul Alam	Hon'ble Vice Chancellor	BUHS
14	Special Guest-3	10	Prof. MA Aziz, MP	Member of Parliament, Sirajganj-3	Bangladesh National Parliament
15	Chief Guest	15	Mr. Atiqul Islam	Hon'ble Mayor	Dhaka North City Corporation
16	Chairman	5	MM Reza	Former Secretary	Ministry of Health & Family Welfare

3rd Day Morning Inauguration

S.L.	Activity	Duration (min)	Name	Position	Organization
1	Moderator		Prof. Malay Kanti Mridha	Professor	BRAC James P Grant School of Public Health, BRAC University
2	Welcome Speech	5	Dr. Emdad Hoque	Health Systems Specialist	United Nations Population Fund (UNFPA)
3	Guest of Honor-1	5	Sir Gorge Alleyne	Director Emeritus	PAHO (Chair)
4	Guest of Honor-2	5	Prof. Fausto Pinto	President	World Heart Federation
5	Guest of Honor-3	5	Prof. Dr. James Miller	Deputy Vice Chancellor (DVC)	Glasgow Caledonian University
6	Guest of Honor-4	5	Prof. Abu Sayeed	Ex Professor	Ibrahim Medical College
7	Guest of Honor-5	5	Prof. Ferdoushi Begum	President	OGSB
8	Guest of Honor-6	5	Prof. Dr. ABM Muksudul Alam	Principal	Shaheed Suhrawardy Medical College and Hospital, MoHFW
10	Guest of Honor-7	5	Prof. Dr. AHM Enayet Hussain	Director General	Medical Education and Family Welfare Division,
10	Guest of Honor-8	5	Md. Helal Uddin	Additional Secretary and Joint Chief	Planning Division, MoHFW
11	Guest of Honor-9	5	Prof. MA Faiz	Former Directorate General, DGHS, MoHFW	
12	Special Guest-1	10	Prof. Dr. Pran Gopal Datta	Member of Parliament, Cumilla-7	Bangladesh National Parliament
13	Special Guest-2	10	Dr. Habibe Millat, MP	Member of Parliament, Sirajganj-2	Bangladesh National Parliament
14	Chief Guest	15	Mr. MA Mannan, MP	Hon'ble Minister	Ministry of Planning
15	Chairman	5	Prof. Dr. Rashid-E-Mahbub	Former President	Bangladesh Medical Association (BMA)

S.L.	Activity (5:30 PM-8:30 PM)	Duration (min)	Name	Position	Organization

Final Closing Ceremony

S.L.	Activity (5:30 PM-8:30 PM)	Duration (min)	Name	Position	Organization
1	Moderator	3	Dr. Abdun Noor Tushar	Advisor	EASD
2	Welcome Speech	5	Dr. Shams El Arifeen (in person)	Senior Director	ICDDR,B
3	Presentation on Conference Outcomes	10	Dr. Ziaul Matin (in person)	Health Manager	UNICEF-Bangladesh
4	Guest of Honor-1	5	Dr. Eiko Narita (zoom)	Representative	UNFPA
5	Guest of Honor-2	5	Judith Herbertson (in person)	Director	FCDO
6	Guest of Honor-3	5	Dr. Maghduma Nargis (in person)	Chairman	EASD
7	Guest of Honor-4	5	Dr. Mostafa Jalal Mohiuddin (in person)	President	BMA
8	Guest of Honor-5	5	Dr. Shehlina Ahmed (zoom)	Health Advisor	FCDO
9	Guest of Honor-6	5	Ms. Carrie Rasmussen (zoom)	Office Director	OPHNE /USAID
10	Special Guest-1	5	Dr. Qazi Kholiquzzaman Ahamad (zoom)	Chairman	PKSF
11	Special Guest-2	10	Prof. Dr. Syed Modasser Ali (in person)	Chairman	BMRC
12	Special Guest-3	10	Md. Saiful Hassan Badal (zoom)	Secretary	MoHFW
13	Special Guest-4	10	National Professor Brig. (Rtd.) Abdul Malik (zoom)	Chairman	National Heart Foundation

Award ceremony

Proclamation of Bangladesh Declaration

Announcement of "2ⁿᵈ National NCDs Conference in Bangladesh-2023"

S.L.	Activity	Duration	Name	Position	Organization
24	**Chief Guest**	**15**	**Dr. Dipu Moni, MP (confirmed in person)**	**Hon'ble Minister**	**Ministry of Education**
25	Chair	10	Dr. Tahmeed Ahmed	Executive Director	ICDDR,B
26	Vote of Thanks	5	Prof. Shah Monir Hossain	President	BNCDF

#ncdconf_BD2022

🌐 www.bncdf.org
✉ info.bncdf@eminence-bd.org
🌐 www.bncdf.org/national-ncds-conference-2021

Organizer:

NCDC | Bangladesh Health Reporters' Forum

Partners:

icddr,b | CIPRB | BRAC JAMES P GRANT SCHOOL OF PUBLIC HEALTH | BRAC UNIVERSITY | WaterAid | orbis | DocTime | UNFPA | unicef সকল শিশুর জন্য | HEU | OGSB

NIKDU | GSIM | BUHS | IBS | phf Public Health Foundation Bangladesh | UNIVERSAL MEDICAL COLLEGE & HOSPITAL LTD. | Public Health Association of Bangladesh | TRAUMA CENTER A Specialized Orthopedic Hospital & Diagnostic Center | ark foundation | দেশের স্বাস্থ্যের জন্যে

Daffodil International University | BANGLADESH ASSOCIATION OF PSYCHIATRISTS (BAP) | NORTHERN UNIVERSITY | NCD Alliance | WORLD HEART FEDERATION | International Diabetes Federation | uicc | WORLD OBESITY

Partners:
eminence
associates for social development