Conference Souvenir

Indian Association for the Study of Population (IASP)

North-Eastern Regional Conference of IASP on

Population, Development and Health in North-Eastern India: Challenges Ahead

Bodoland University, Kokrajhar, Assam

18-19, May 2023

INDIAN ASSOCIATION FOR THE STUDY OF POPULATION

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Prof. DP Singh
Vice-President

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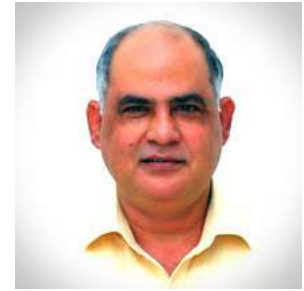- Prof. Usha Ram
- Dr. Jeetendra Yadav
- Dr Ajay K Singh

Content

Message

The **Indian Association for the Study of Population** is honoured to be organizing its North-Eastern Regional Conference in collaboration with the Bodoland University, Kokrajhar, Assam. I have had the honour of being associated with the Association for more than a decade now. I credit it to the incredible leadership and teamwork of the people behind IASP for building a fraternity so futuristic and so visionary that its importance and relevance continues even after 51 years since its inception.

I am sincerely optimistic that this conference will be a platform to propel sustained results from dialogue, given the brilliant participation from demographers and social scientists presenting on a wide range of topics encompassing the domains of health and development. The conference also brings to surfaces research dialogues of relevance to the North-Eastern Health and Population landscape. It is a wonderful, and most enriching opportunity to bring to surface the sub-national deliberations around public health and family welfare landscape in India.

I take this opportunity to express my gratitude towards Bodoland University for being the most gracious hosts for this conference. I would also like to acknowledge the tireless efforts of the entire team at the University in enabling this conference. In thanking our valued participants, I would like to add that this truly is your conference first.

I am humbly thankful to the sponsoring agencies of this conference, for it is by the grace of their unflinching support that the vision for this conference has seen light of the day today.

Last but not the least, I extend my most sincere thanks and regards to IASP EC Members, and BoT Members for conceptualizing and delivering on this conference; it is for each nad every effort that you've put in that the conference could be a great success.

May, 2023

Prof. Suresh Sharma
President, IASP

Message

The Indian Association for the Study of Population (IASP; https://iasp.ac.in), the prestigious Associations of the Population Scientists, Demographers, Social Scientists, and Public Health Experts in India. Established in 1963, the IASP has emerged as an asocial of global reputation. The Association is vigorously pursuing the scientific study of population, health, family welfare, aging, nutrition, and developmental issues concerning India. To achieve its goal, the Association organizes conferences, training programs, workshops, seminars, and panel discussions on emerging issues relevant/contributing to framing of policy-population as well as health. Also, it conducts distinguished lectures on contemporary topics from global and national experts. The Association regularly publishes an Online Journal, Demography India. In 2021, the Association reached newer heights by co-organizing International Population Conference virtually jointly with the International Union for the Scientific Study of the Population (IUSSP) for the second time, the first time being in 1989.

Besides national conferences, the Association organizes regional conferences to promote the discipline of population science and encourage local researchers to undertake research on issues important/relevant to States, Union Territories, and local populations. In my view North-East region (with population of 46 million in 2011 has been overlooked in terms interaction with researchers from this region due to various reasons. The most important may be availability and access to demographic and health data. Even Most popular and reliable source (Sample Registration System) originating from Registrar General Of India under Ministry of Home affairs does not publish demographic parameters like fertility and mortality. However with emergence of district level household survey and National Family Health Surveys lot of information on population health and health care system is available.

In this context IASP took conscious decision to organize the regional conference (second in this series) in Bodoland University to understand population and health concern of the N-E states- Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim and Tripura. I must mention that we have like other bigger states regular data for Assam but not for other 7 states (comprising of 14.6 million people in 2011 and likely to grow to more than 18 million by 2036). The Conference is scheduled during May 18-19, 2023, at the University of Bodoland. The Conference's theme is "Population, Development, and Health in North-eastern India: Status and Challenges Ahead". We received more than for the Conference from all parts of the country representing researchers, academicians, scholars, and policy and program managers. I hope that the deliberations in the Conference will come up with strategies to help states identify the data gap, way to fill in the gap and improve population and health indicators and reach the SDGs.

I congratulate all IASP members and the EC members for their commitment, cooperation, and hard work in organizing the N-E chapter conference. I would especially like to congratulate Dr. Pralip Narzary, Professor, Dept. of Geography, Bodoland University, local organizer and Dr. Ajay Kumar Singh, Joint Secretary and Coordinator, North-eastern Regional Conference, IASP along with the team members under the leadership of Dr. Suresh Sharma, President IASP for the hard work they have put over the past two months to make this event happen. The IASP remains thankful agencies, institutions and others who have been continued financial and other support to making this Conference a grand success.
May, 2023

Prof USHA RAM
PhD and CIHR-HOPE fellow (2011-15)
Professor & Head, Dept. of Bio-Statistics and Epidemiology
International Institute for Population Sciences, Mumbai (IN)
General Secretary, IASP

Message

The Indian Association for Study of Population (IASP) was formed during 1970 with necessary guidance, encouragement and active support of Prof Ashok Mitra and Shri A. Chandra Sekhar, successive Registrar Generals and Census Commissioners of India. The Indian Association for the Study of Population (IASP) organized National and International conferences, and distinguish lectures on Population, Demography, Public health, Health Economics and Epidemiology -related issues. Demography India is the official journal of IASP, which publishes two volumes in every year's research papers related to population and health-related issues. IASP has organized two International Population Conferences, in 1989 and 2021, with the International Union for the Scientific Study of the Population (IUSSP). IASP successfully organized the43rd Annual Conference of the India Association for the Study of Population at the Mohanlal Sukhadia University [MLSU], Udaipur, Rajasthan, in collaboration with the Population Research Centre, Udaipur, during December 1-3, 2022. The theme of the conference is "75th Azadi ka Amrit Mahotsav: Population, Nutrition, Health, and Development: Experiences and Challenges.

IASP is organizing the North-Eastern Regional Conference of IASP 2023 on Population, Development and Health in North-Eastern India: Challenges Ahead in collaboration with Bodoland University, Kokrajhar, Assam on May 18-19, 2023. The conference would offer a platform for discussions and deliberations that would lead to policy and programme recommendations for the North-Eastern states included Arunachal Pradesh, Assam, Manipur, Megalaya, Mizoram, Nagaland, Sikkim and Tripura.

I wish to take this chance to express my gratitude to all the members of IASP for their active participation in the activities of IASP. I would also thank all the executive committee members and BOT members of IASP. I thanks to Prof. Ladu Singh, Hon. Vice-Chancellor, and Dr. Pralip Narzary, Professor, Bodoland University **Assam** for accepting our invitation to jointly host the Conference. Special thanks to IASP President Dr. Suresh Sharma, General Secretary Prof. Usha Ram and Dr. Ajay Kumar Singh, Joint Secretary and Coordinator, North-eastern Regional Conference for their efforts in organising this conference. I express my sincere appreciation to all the agencies, institutions and others who have been providing financial support to the North-Eastern Regional Conference of IASP 2023.

I send my heartfelt greetings to all of the conference attendees, and I hope you all have a great time!

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Dr. Jeetendra Yadav, Ph. D
Treasurer, IASP

Technical Officer-C
ICMR-National Institute of Medical Statistics
Ministry of Health & Family Welfare, Govt of India

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May, 2023

BODOLAND UNIVERSITY, KOKRAJHAR

Debargaon, P.O. Rangalikhata
Kokrajhar - 783370, BTAD, Assam.

7506331667 (M)
Tel. No. 03661-277127 (O)
Fax No. 03661-277127 (O)

Date: May 13, 2023

Prof. Laishram Ladusingh
Vice-Chancellor

Message

It is a proud moment for the Bodoland University to host the North Eastern Regional Conference of the Indian Association for the Study of Population (IASP). The conference shall be the conglomeration of experts and scholars from various academic disciplines to deliberate on nutrition, health, development, gender, migration, fertility, mortality and equity issues pertaining to the north eastern region of India. This conference is a platform for interactions, exchange of best practices and sharing of novelty in research among the academicians, stakeholders and civil societies. The conference is expected to provide policy inputs to address the bottlenecks to health, demographic, migration and development in north eastern region of India.

I appreciate the IASP for holding the North-Eastern Regional Conference in Bodoland University and wish the conference a grand success.

(Prof. Laishram Ladusingh)
Vice-Chancellor
Vice-Chancellor
Bodoland University
Kokrajhar

About Kokrajhar and Bodoland University

The Bodoland University is located to the north of Kokrajhar town which is well connected to the other parts of India through road, rail, and air. The nearest railway station is Kokrajhar Railway Station which is 8 km from the university. There is a shared auto service from the station to the university. New Bongaigaon Junction is approximately 40 km away from the university. Both hired and shared taxis and other public transport services are available from Bongaigaon to Kokrajhar. The nearest airport Rupsi Airport is approximately 70 km away from the university. Hired Taxi is the only mode of transport from the Rupsi Airport to Bodoland University. LGBI Airport, Guwahati is around 220 km away from Kokrajhar town. Apart from the hired taxi, one can come from Guwahati to Kokrajhar by train and bus.

General weather conditions during May in Kokrajhar: The average temperature in Kokrajhar in May for a typical day range from a high of 33℃ to a low of 24℃. For some, it would be described as very warm and humid. There is also a 30% chance of rain on an average day. The average day in Kokrajhar during May has 13.4 hours of daylight, with sunrise at 4:45 am and sunset at 6:07 pm. As general weather conditions will be mostly very ward and sticky, visitors are advised to come in cotton clothes.

Places of Importance for Visits in Bodoland Territorial Region:

> i) Manas National Park: 160 km
> ii) Jamduar National Park: 62 km
> iii) Bhutan (Gelephu): 65 km
> iv) Bhutan (Phuntsholing): 138 km
> v) Mahamaya Dham And Shnan Ghat Temples: 24 km
> vi) Bodoland Territorial Region (BTR) Secretariat: 8 km from University
> vii) Diplaibeel: 28 km
> viii) Dhirbeel: 25 km

All guests are also advised to log on to https://bodolandtourism.in/ *for further details and information. All KMs are from Kokrajhar Town. Further for visiting Bhutan **Voter ID and Passport** are the only documents the Royal Govt. of Bhutan accepts for entry. So, all the guests are requested to keep either of the documents handy if planning for a Bhutan trip.*

Shopping Centres & Restaurants in Kokrajhar: Vishal Mega Mart, Bazar India Mall, Style Bazar Mall, Green Land Shopping Centre, Brahma Shopping Centre, Reliance Trends, Local Cultural Shops, etc. Restaurants such as Gaurang Valley Restaurant and Bar, Omshree Hotels & Bar, Meat & Eat, Dominos, Laziz Pizza, Food Plaza, Ai Hotels (Local Cuisine), Bajwi Hotel (Local Cuisine), and many others.

Bus and Train Timing and Operator:

1. **Gun Gun Travel Service**

   Helpline No and Time:

   i) ISBT (Ghy) to Kokrajhar: 4: 45 am (8011130523)

   ii) ISBT (Ghy) to Kokrajhar: 5: 45 am (8471986959)

   iii) ISBT (Ghy) to Kokrajhar: 12: 00 pm (8011130417)

   iv) ISBT (Ghy) to Kokrajhar (AC): 12: 30 pm (8133966613)

2. **Red Bus Service (Information Available on redBus App)**

   i)   ISBT (Ghy to Kokrajhar) (AC): 6:20 am

   ii)   ISBT (Ghy to Kokrajhar): 9:45 am

   iii) ISBT (Ghy to Kokrajhar) (AC): 12:45 pm

   (Download the redBus App for further available information and timings)

3. **Guwahati to Kokrajhar Train Timings:** Available on various travel websites and the IRCTC web portal.

4. **Hired Car:** Available on the Airport

ABSTRACTS FOR ORAL PRESENTATIONS

Paper ID-5
The impact of health insurance support on maternal health care utilization in India and north-eastern states
Aditi Das
Assistant Professor, department of economics, Nalbari College, Nalbari, Assam

Background
Maternal health care financing is key to the smooth functioning of health systems in a country. In India, and specially in Assam maternal healthcare's till Persists as a major public health issue. Adequate health insurance could transform the utilization of maternal health care services. Therefore, we aim to examine the health insurance policies that cover maternal health and their performance in India and north-eastern states.

Methods
The unit level data of social consumption on health by the National Sample Survey Organizations, conducted in India (2017-18) are used. The study has used maternal-child health care services in a 365-day reference period as a unit of analysis. A total of 113823 households (555351 individuals of which 31914 pregnant women in the last 365 days, covering prenatal care, and of childbirth and post-natal care) were successfully interviewed. Bivariate analysis, logistic regression and propensity scoring matching are applied.

Results
At the national level, about 14.1% of women are covered by health insurance, and in the case of the north-eastern states, 13.7 percent of women are covered by health insurance.Uninsuredwomenarelesslikelytoreceivefullantenatalcare(ANC)servicesandinstitutionaldelivery.Socio-economic characteristics play a significant role in utilizing maternal health care benefits through health insurance support.

Conclusions
The analysis suggests that the health insurance coverage is the most significant contributor to the better utilization of full ANC and institutional delivery at north -east India and national level. and hindrances in accessing them. There is a need for proactive and inclusive policy development by the Government of India to incentivize public financing through health insurance, which can shrink the challenges of public health burden and reduce the health risk.

Paper ID-12
Higher-Risk Sexual Behaviour among Youths in Northeast India: A Spatial and Multilevel Analysis

Nandeibam Alfred Rozer, Dr H Nirendrakumar, Meena Hijam,
Haobijam Saratchandra and Mr. Naorem Arun

Background: Sexual risk related disease and complications has remained unacceptably high in the northeast India, particularly in low and middle- income families. The geographical variation and the determinants of the higher-risk sexual behaviour among youths in Northeast India need to be identified & analyzed.

Aim: To identify the hotspot cluster and determinant of higher-risk sexual behaviour among Youths of northeast India.

Data and methods: We utilized; NFHS-5 (2019-21)data. The spatial statistical tool was used to identify hotspots clusters and the multilevel regression analysis is used to identify the risk factor.

Results: The large hotspot clusters for the higher risk of sexual behavior among youth were cluster in the states Meghalaya, Assam, Tripura and some part of Arunachal Pradesh. Further analysis shows higher risk sexual behavior among Christian religion and tribe at ethnicity level. A similar pattern was seen among richest, higher educated, smokers and alcohol consumers.

Conclusion: The result highlights the need to develop district- centric approach to reduce the risk of higher-risk sexual behavior amongst youth in northeast India by giving behavioural intervention programs, comprehensive sex education and strengthening existing HIV programmes.

Creating people centric programs through participatory needs assessment: Findings from an exercise conducted in BTC

Dr. Ambuja Kowlgi, Mr. Charley Vincent, Ms. Mallika Tharakan, Ms. Nimisha Bhagawaty, Ms. Shramana Majumder, Mr. Sumit Kumar Das and Ms. Subhrali Kachari

Background and Objectives

The Bodoland, officially the Bodoland Territorial Region, is an autonomous region in Assam, Northeast India. Over the years, while the communities in the BTR have braved the repercussions of years of conflict and have emerged resilient keeping intact its rich cultural and traditional systems, they are also actively seeking opportunities to enhance their quality of life. Therefore, there is a need for concerted efforts to strengthen the health and development efforts in the region. BTC collaborated with KHPT, a not-for-profit trust spearheading focused initiatives in health and development for marginalised population groups across the country to carry out a detailed needs assessment to understand the realities on the ground, the needs and aspirations of the local community group as well as the opportunities for system strengthening efforts. The needs assessment was undertaken with the following objectives:

- Map the major challenges faced by men, women, and adolescent girls and boys around health and well-being, education, and livelihood.
- Gain an insight into the existing support system across different levels such as individual, community, and at the system level.
- To engage with different stakeholders to know the needs and challenges of the native tribal community.

Data and Methods

The research methods used for this study were qualitative in nature and were aimed at generating deeper insights from a wide range of stakeholders in the ecosystem. These stakeholders included men, women, adolescent boys, and girls, front line workers, VCDC, VDP members, and multiple stakeholders at the system level. The methods of participatory workshops (03), focus group discussions (02), key informant interviews (02), and public engagement program (01) were used to understand the native tribal community and to reflect, and deliberate on the issues affecting the native tribal community related to health, infrastructure, education, gender, etc. over a period of five days. The data collected was filtered, triangulated and analyzed with phenomenological approach.

Findings

Consolidated findings from the workshops with men, women, adolescent boys and girls, frontline health workers, BTC officials and VCDC members show certain key issues that need to be addressed such undernutrition among women, children and young adults, teenage pregnancies, NCDs, gender-based violence, and mental health issues. Additionally, structural issues like lack of infrastructure on health and education, accessibility, livelihood and income generation opportunities afflict the population. The findings provided deeper insights into the individual, family level and community level aspirations, concerns, barriers and needs particularly among specific groups like men, women, adolescent boys and girls, as well as systems level gaps and challenges. The analysis revealed that the aspirations as individuals as well as community are met with structural level barriers. The lack of employment and income generation opportunities creates a sense of frustration which is reflected in the gender and familial relationships. The overpowering structural challenges affects the health awareness and health seeking behavior.

Policy Implications

The insights gained highlight the significance of needs assessment to understand the challenges and barriers at the vulnerable population level and the need to adopt a prioritized and differentiated approach with vulnerable populations. Further, points to a need for creation of platforms for community participation and engagement to for sustainability of initiatives undertaken. The insights from the needs assessment can inform policy to improve access to community-based health services from a primary health care perspective and to achieve holistic community health and well-being through and building responsive health systems and promoting community ownership in the Bodoland Territorial Region (BTR).

Paper ID-14

Alarming Socio-Economic Divide: The Shocking Truth About Pain Among Middle-aged and Older Adults in North-eastern India
Amit Kumar Goyal

Background and Objectives:
Sustainable Development Goal (SDG) 3 aims to "ensure healthy lives and promote well-being for all at all ages". Target 3.4 specifically aims to reduce premature mortality from non-communicable diseases (NCDs) through prevention and treatment, and promote well-being for people of all ages. Pain is a public health priority, especially for middle-aged and older populations. As we age, pain becomes a ubiquitous experience, and for many older adults, it is a "geriatric giant" that impacts almost every aspect of our lives. However, despite its significant impact on the lives of the elderly, awareness of pain attributes remains limited, making the management of pain challenging. To address this gap, this study estimates the prevalence of pain by its site and analyse its socioeconomic inequalities among middle-aged and older adults of north-eastern states of India.

Data and Methods:
We analysed data from Wave 1 of the Longitudinal Ageing Survey of India (LASI), conducted in 2017-18, to study pain and its four variables representing the sites of pain occurrence: Backpain (n= 4,198), Joint pain (n= 3,429), ankle/feet pain (n= 549), and headache (n= 1,055). We used education as an indicator of socio-economic status (SES) and calculated age-sex adjusted risk differences (ARD) and age-sex adjusted risk ratios (ARR) from the predicted probabilities generated by binary logistic regression. To examine the socio-economic gap, we compared the lower education group with the higher education group. To estimate the social gradient, we compared the medium education group with the higher education group.

Findings:
High prevalence rates were reported for all four types of across states of north-eastern India. At India level, the joint pain was found to be most prevalent with 47% of participants experiencing pain, it followed by back pain at 31.5%, feet pain at 20% and headaches at 12%. The prevalence of pain has been found to be relatively higher in mountainous north-eastern states of India as it is evident that the participants who felt steep slopes around their residence were more likely to report pain due to increasing mechanical stress. There were significant socio-economic inequalities in the prevalence of pain-with social gradient or socio-economic gap. It was most pronounced for back pain and least pronounced for ankle/feet pain. The magnitudes of the socio-economic pain inequalities also vary across north-eastern states.

Policy Implications:
As pain prevalence is relatively higher in across north-eastern states, future strategies should focus on reducing the burden of pain and also consider the associated socio-economic inequalities of pain to ensure the "pain gap" does not widen.

An Assessment of Nutritional Status among Children of East Khasi Hills Districts, Meghalaya: A Case Study

Ms. Banrisha Thangkhiew and Dr. Pranti Dutta

Introduction: An adequate nutrition is important to lead a healthy lifestyle as well as to reduce the risk of chronic diseases (WHO 2020). The recent report of Global Hunger Index of 2022 shows that out of 117 countries, India ranked at 104. According to UNICEF (2018) the hunger is the immediate cause of malnutrition and it is because of inadequate dietary intake. The paper aims to investigate the nutritional status among the children of East Khasi Hills District of Meghalaya since Meghalaya is recorded one of the highest levels of stunting (47%) among children in India as per the fifth round of National Family Health Survey (2019-21).

Methodology: The present study uses a mixed method approach. By using multi-stage sampling method two Community Rural Development Block (CRDBs) were selected and later, total three villages were identified from these blocks. Finally, the total 237 sample were selected based on the availability of household with 24 months to 10 years of children during December- Janunary, 2022- 2023. The interview was taken with the parents, the elder person from household and health providers of the studied area. For analysis of data, the simple tabulation and case studies as well as explanatory methods were used.

Results: Based on the body mass index, the study found that there is presence of stunted, wasted and underweight children among the studied population. Again, study also showed that dietary and non-dietary factors are responsible for undernourishment among the children. Further, study highlighted the reason for non-identification of undernourishment from the provider point of view.

Policy Implication: Finding of the study can provide insight to policymaker to understand the underlying causes of malnutrition among children that helps to take context specific measures.

Hazard Factors and Survivability of Oesophageal Cancer Patients in Assam, North East India:
A Cox Proportional Hazard Model Approach

Biraj Kumar Kalita ,Ksh Anand Singh

Background and Objective

The oesophagus is a muscular tube that carries food and liquid to the digestive organs. Habit of smoking, alcohol consumption, and poor nutrition leads to damage of this organ. Result in cell malignancy and Oesophageal cancer. Also when diagnosis is late and delay in treatment results in poor survivability rates. In India, oesophageal cancer is a leading cause of mortality, with high incidence and mortality rates due to factors such as tobacco and alcohol consumption, similar the situation for the state of Assam. The study aims to assess survival patterns of oesophageal cancer patients in Assam, India, and understand the causes of high mortality in the region.

Data Analysis

A hospital-based case-control study was conducted in the Guwahati and Dibrugarh districts of Assam from January to December 2022. The study included 400 cases oesophageal cancer patients confirmed by histopathology,. Data was collected through a questionnaire and entered into SPSS version 25 for analysis. The Kaplan-Meier method and Cox proportional hazard regression were used for statistical analysis to measure survival probability and assess the net effect of each variable after controlling for potential confounders.

Finding

Four risk factors were found to be significantly associated with survivability: drinking very hot tea or coffee (HR 2.53, CI 1.145-5.737, p-value 0.004), traditional drink (HR 2.230, CI 1.006-4.939, p-value 0.048), smoking (HR 3.180, CI 1.305-7.757, p-value 0.011), and smoked fish (HR 2.657, CI 1.151-6.201, p-value 0.022). The survival probability was calculated using the Kaplan-Meier method, and the first mortality occurred at four months, with a survival probability of 99.95%. The survivability rate decreased to 84.50% after one year,

60.2% after two years, 42.9% after three years, 35.5% after four years, 28.5% after five years, and 13% after six years.

Policy Implications:
Recommend reducing consumption of very hot tea/coffee, traditional drink, smoking, and smoked fish to improve survivability. Screening for cancer can aid in early detection .

Paper ID-52
Delayed Immunization in North Eastern Region of India: A Geo-Spatial Analysis
Bishwajeet Besra, Manali Swargiary, and K.C. Das

Background and Objective
Over the past several decades, there has been a significant reduction in child mortality worldwide. An important factor for preventing childhood mortality and morbidity is immunization. Childhood immunization has been an important part of maternal and child health services in India since the 1940s. Child immunization status is determined by several factors at the individual, family, community level, and health system or service delivery level issues. This study aims to find the levels and spatial patterns of delayed immunization in the North Eastern states of India.

Data & Methods
This study uses data from the 5th round of the National Family and Health Survey and Rural Health Statistics 202-2021. Bivariate analysis, Moran's I, univariate and bivariate Local Indicator of Spatial Association (LISA), were used to assess the spatial autocorrelation and clustering of delayed immunization in the North Eastern states of India.

Findings
Fully immunization has increased significantly in India, but delayed immunization is relatively high in the North Eastern Region. Mizoram and Meghalaya have the highest levels of unvaccinated children, 13.6% and 9.4%, respectively. Bivariate analysis shows that delayed immunization is high among poorer households and mothers with less educated mothers. Also, there is high-high clustering in districts with high delayed immunization and low health infrastructure per lakh population. Suggesting

Policy Implication
Immunization disparities in North East India among socio-demographic groups can increase vulnerability to vaccine-preventable diseases. Targeted efforts such as expanding outreach services, improving health education, and increasing access to affordable vaccines are necessary to address these inequalities.

Paper ID-55
Female migration pattern in the North-eastern states of India: Empirical evidences from the recent Census
Chandrima Paul

Female migration can be one of the influential factors for socio-economic development of a nation. It was only since a past few decades that female migration received focus towards their contribution in labor market. Women from different socio-economic background are on the move for a better standard of living. Large magnitude of migration in females is associated with marriage in India. Volume, rate and trends for female inter-state migration to and from the North-eastern states of India have been calculated in excel from migration tables of Census of India 2011, 2001 and 1991. Manipur followed Mizoram received the least number of female in-migrants among all states in India while Sikkim followed by Mizoram sent the least number of inter-state female out-migrants in India. Among the North-eastern states, Assam and Manipur had a negative female interstate net migration which means out-migration is more than in-migration in these states while the rest had a positive net migration. Sex ratio in in-migration is very low among North-east states except for Manipur (1222), Meghalaya (1179) and Assam. Sex ratio in out-migration is more than 1000 in all North-eastern states except for Assam (900). In states of Mizoram and Tripura, the female net migration has become negative to positive over the years which means in-migration became more than out-migration

during these years. In Nagaland, female net migration has become positive to negative over the years which means out-migration became more than in-migration during these years. While Manipur and Assam has been experiencing negative female net migration since 1991 till 2011.

Paper ID-62
Menstrual Health and Hygiene Practices among Women in Assam, India
Dhirendra Kumar and Meenakshi Baghel

Menstruation among women is a natural and one of the important reproductive processes for women health and population growth. Numerous studies in India reveals that young girls lack adequate knowledge of menstruation hygiene and transacting correct knowledge is a social taboo in India. The National Health Mission, government of India has introduced the Menstrual Hygiene Schemes (MHS) to raise awareness among adolescent girls and promoting friendly environment to improve easy access and availability of high-quality sanitary napkins and its safe disposal among rural and urban girls. The MHS focus on reducing stigma around menstruation which is deeply rooted in the society. In rural areas, women do not have easy access to sanitary products, or they know very little about the types and method of using them or are unable to afford such products due to high cost. So, they mostly rely on reusable cloth pads which they wash and use again. Keeping in view of the scenario, an attempt has been made to study the menstrual hygiene practices among women in India by analysing the data of NFHS 5. The sample of women aged 15-24 were asked what method or methods they use for menstrual protection. In India, 64 percent use sanitary napkins, 50 percent use cloth, and 15 percent use locally prepared napkins. Overall, 78 percent of women in this age group use a hygienic method of menstrual protection. Women with 12 or more years of schooling are more than twice as likely to be using a hygienic method as women with no schooling (90% versus 44%). Women in the highest wealth quintile are almost twice as likely to use a hygienic method as women in the lowest wealth quintile (95% versus 54%). Seventy-three percent of rural women use a hygienic method of menstrual protection, compared with 90 percent of urban women. The lowest percentage of women use a hygienic method of menstrual protection in Bihar (59%), Madhya Pradesh (61%), Meghalaya (65%) and Assam (67%). The seventy percent of women reported to use cloths (reuseable) and local prepared napkin (14 %) in the state Assam. The finding suggests that menstrual hygiene practices are affected by cultural norms, parental influence, personal preferences, economic status, and socioeconomic pressures. The menstrual hygiene practices in the country continues to be a taboo subject for young girls who enter puberty with knowledge gaps and misconceptions about menstruation. The parents and teachers are themselves ill-informed and uncomfortable discussing sexuality, reproduction, and menstruation.

Paper ID-66
Impact of Covid-19 on maternal Health Care among Underprivileged Women in Assam
Dr. Dipanjali Haloi

This study finds out problems faced by the expectant mothers to receive antenatal care and delivery care as a result of nationwide Lockdown due the Pandemic. Two districts viz., Kamrup (Metro) and Dibrugarh are selected purposively. Expectant mothers from the slum, non-slum poor and rural poor who were pregnant or gave birth during the lockdown period (April, 2020 to August, 2020) were interviewed through schedules. 15.1% or 32 respondent of the total of 212 in Kamrup (Metro) were facing number of problems. Among the 32 respondents, 25 respondents faced the problem of transportation as the main hindrance to avail the health care. Moreover, 3 respondents responded that ASHA, ANM and Anganwadi workers did not give response to them. Moreover, a small number of respondents were also confronted with shortage of health infrastructure at the health centre, no health care provider at the health centre along with transportation problem. During the first wave of Covid-19, covid positive cases were not remarkable in the selected area of rural Dibrugarh. Respondents were able to get the help of front-line health workers as well as health facility at the health centre as well as the transportation facility. Moreover, as the health centre is within the reachable distance they could easily go and take necessary health care. The picture is however different in urban Dibrugarh. Slum people who are living on the bank of river Brahmaputra were devastated. They were found to live in tent house having no permanent dwelling, no sanitation, water supply and electricity. During the lockdown, frontline health workers were found less frequently visited and have taken less initiative to

registrar pregnancy as well as help pregnant women to take medical services. As a result, in urban Dibrugarh, as compared to rural Dibrugarh less percentage of mothers were found to take TTT1, TT2 and Iron and folic acid.

Paper ID-71
Child and Maternal Health of the Seven Sisters in India
Analysis based on Five Rounds of NFHS Data

Eva Ghosh

North Eastern Zone comprising seven states in India does possess some special features in respect of geo-political and agro-climatic conditions. An attempt has been made here to examine the performance of North-Eastern states (popularly known as seven sisters in India) in respect of child and maternal health outcomes compared to rest of the Indian states using 5 rounds of NFHS Data. The results show that even though they have similar characters but few of them perform better whereas four states like Assam, Arunachal Pradesh, Tripura and Meghalaya could not perform satisfactorily in respect of child and maternal health. The result of Generalized Entropy measure of inequality shows that among these North-Eastern states, the inequality of health outcome is found to be increasing over time. Both the Central and State Government should give more emphasis or implement new policies to improve the child and maternal health status in order to make effective human capital with a view to reap the benefit of demographic dividend in future.

Paper ID-73
High Prevalence of Early Marriage Practice in North East India: A Threat on
Adolescent Sexual and Reproductive Health Rights (ASRHRs)

Gita Naik, Dr. Jagannath Behera

Background: International Conference on Population and Development (ICPD) was the key event in human welfare and development. In 1994 this ICPD was taken place in Cairo and after this woman and their reproductive health got limelight (UNFPA). Currently in India 253 million 10-to-19-year adolescent girls are living which is a very big figure and this phase is a very sensitive period for boys and girls both. Child marriage is the violation of adolescent sexual reproductive health right (Raj. A, 2015). According to fifth round survey of NFHS, prevalence of child marriage is around 13 % which is very high in India.

Objectives: Aim of this study is to see districts wise spatial variation of early marriage practice in Assam and West Bengal. Other aim is to identify major contributing factors in early marriage practice in these two states.

Data and Method: Present study is based on fifth round survey data of National Family Health Survey (NFHS-5) and women file utilized. Here dependent variable is child marriage (15–19-year age) and independent variables are socio-economic background characteristics (place of residence, caste, religion, wealth index, education level, mass media exposure). For data analysis we employed- simple percentage, univariate, bivariate cross tabulation, chi square test and logistic regression to identify major determining factors of early marriage in Assam and West Bengal

Findings: West Bengal, Assam and Bihar (28%, 20%, 21%) are identified as having high child marriage prevalent states of India. All these states bear more evidence of child marriage practice still now. In western Assam this practice is more visible, here in South Salmara Mancach district it is 36% and lowest is 9% in West Karbi Anglong. In West Bengal it is lowest in Kolkata (9%) and highest in Birbhum (40%), again in this two-state district wise variation is huge and need special focus in vulnerable districts. In rural area this practice is more common (West Bengal 84%), (Assam 94%). Caste, education level, mass media exposure and wealth status of the respondents are the major controlling factors in early practice here.

Policy Implications: Present study can help policy makers and NGO workers to work vulnerable regions of this two states to remove this practice from root. Again, this study can help to identify problematic sectors where this practice is more.

Paper ID-74

How Hypertension Puts the Heart at Risk in Northeastern States of India: Uncovering the Risks and Impacts

Gudakesh

Background: Hypertension is a major risk factor for cardiovascular diseases and affects a significant proportion of the global population. Among developing countries, Indian men aged 40-55 have the highest blood pressure levels compared to their counterparts. Systolic hypertension is a common risk factor for heart failure, stroke, and ischemic heart disease. However, there is limited data available on the linkages between hypertension and these diseases in Asian countries. **Objectives:** The objective of this paper is to bridge this gap by examining the risk factors associated with hypertension and its linkages with heart disease in the seven North-eastern states of India, where high prevalence rates of hypertension and heart disease have been reported.

Methods: The National Family Health Survey-5 data has been used for this study, and bivariate and ordinal logistic regression analyses were conducted to assess the factors associated with hypertension. Logistic regression was also used to assess the linkages between hypertension and heart disease.

Results: Study show that approximately 1.4 percent of males in North-eastern states are affected by heart disease, of which 16 percent of them are also hypertensive. Hypertension is associated with increased odds of heart disease among both men and women. These findings have important implications for policy-making concerning public health, including the need to control elevated blood pressure levels and address the differences in prevalence between men and women.

Policy Implications: Early detection and diagnosis of hypertension are crucial for preventing complications, which can be achieved by increasing awareness and education about hypertension, improving medication adherence through proper counselling, and strengthening the health system to ensure adequate screening, diagnosis, and treatment. Encouraging the use of community health workers for hypertension screening and referral, particularly in rural areas, and promoting lifestyle modifications are also important in preventing hypertension.

Paper ID-76

Socio Economic Condition of Manipur: A Situational Analysis of the Communities

M. Hemanta Meitei

This study examines the socio-economic conditions of the different communities of Manipur. There has been a drive for inclusion of the Meiteis/Meeteis of Manipur in the Scheduled Tribe list and debates are going on with a stiff opposition by different sections of the society. The communities in the study refer to the Meiteis/Meeteis, tribals (ST) and Muslim (Pangal). The data from the census and surveys particularly NFHS and DLHS are used to examine the conditions of these sections of Manipur. The indicators to measure the socio-economic conditions consist of type of house, flush toilet, clean fuel for cooking, clean drinking water and possession of two-wheel vehicles. The study discovers that overtime there has been improvement in all these indicators through census from the housing and amenities data up to 2011 from 1991. There is variation by districts but community wise analysis is not possible from census data. Community level analysis is more convenient to use the survey data of NFHS and DLHS. Both the surveys also proved improving in these indicators. For evidence, the housing of the NFHS-5 of 2019-20 is displayed here. The 2011 census data showed that only 13.8% of the households had pucca walls which got better from 1991 (5.6%) and 2001 (8.4%). NFHS-5 data show that pucca house among the Meiteis, Muslims and Tribal were 23.5%, 20.5% and 15.3% respectively. This is just an overt generalization when going down deeper there is a different observation. For every category of the wealth index the proportion having pucca house is higher among the tribals compared to the Meiteis and Muslims. For other indicators too among the rich and richer section the

proportion having the amenities is almost comparable. Therefore, the challenge lies how the households of different groups fall into different wealth index categories.

Paper ID-92
Prevalence and Change in child growth failure among under-5 children in Assam: A comparative study from NFHS-4 and NFHS-5

Ms. Kamna and Dr. Alok Kumar

Background and Objective: Child growth failure is becoming a persistent public health concern in low- and middle-income nations such as India. Even though infant mortality rates have significantly declined, Assam continues to be one of India's biggest contributors. Compared to urban children, children in rural settings have a 2.4 times higher risk of dying before age 5 as per SRS data.

Data and Methods: The data is obtained from NFHS-5(2019-2021). The data on wasting, stunting, and underweight children are extracted from NFHS-5 district-level fact sheet. In this study, the prevalence of stunting, wasting, and undernutrition in under-5 children is observed in two different time frames (NFHS-5&NFHS-4) and district-wise change is calculated by differencing these two data. The spatial distribution of current child growth failure indices has been shown through thematic mapping.

Findings: The results show that the prevalence of stunting increased across 10 districts of Assam whereas wasting increased across 17 districts. In three districts, the prevalence of stunting increased significantly (greater than 5%) whereas there are 10 districts in which the prevalence of wasting increased significantly (greater than 5%). The prevalence of underweight children increased across 15 districts. There are 8 districts in which the percentage of underweight children increased significantly. There are 24 districts in which stunting is greater than 30%. There is also a high prevalence of wasting and underweight children. 14 districts show a high prevalence greater than 20 percent of stunt child whereas 18 district shows greater than 30 percent of underweight child as per NFHS-5 data.

Policy implications: The high prevalence of child malnutrition is a measure cause of child mortality in Assam. To rectify this situation, the policy needed to implements strictly. In the Mid-day mile scheme, the quality of food should be improved. Government should make schemes to reduce poverty.

Paper ID-101
Gender Caste Development Index: Analysis of Urban women from states of Seven sisters

Dr. Kshipra Jain   Dr. Manish Sinsinwar and Dr. Nisar Kannangara

Background & Objectives: Adjusting India's Human Development Index for gender inequality, it ranks at 122 as one of the worst performing countries. The North-eastern states differing in aspects such as culture and norms can however have varied picture of gender inequality. Further, urban areas assumingly not so deprived are rarely investigated from gender-caste perspective. The study therefore aims to uncover gender inequality specific to North-eastern states and inter-state disparities for urban women.

Data & Methods: The study analyzed data from five rounds of NFHS (1992-2021) focused on urban women for North-eastern states except Sikkim for which data was not collected during NFHS-1 and 2. Adopting the methodology of HDI, the study constructed Gender-caste-development-index (GCDI) based on education, wealth and occupational status. The deprivation index for each of the indicators was averaged to construct Caste-deprivation-index from which GCDI was computed. For consistency across the rounds, caste (as SC/ST and non-SC/ST) and occupational categorization was done accordingly.

Findings: The study reveals that though the progress has been made by all North-eastern states on the GCDI; however, the absolute values are on a lower side. Barring NFHS-2, the position of women for GCDI improved across the caste groups; yet there exist inter-state variations amongst the SC/ ST and other women. In the states of Meghalaya, Mizoram, Nagaland and Arunachal Pradesh, it is women from SC/ST community performing better than women belonging to other caste groups in terms of absolute and relative inter-caste disparity while opposite stands true for Assam, Manipur and Tripura.

Policy Implications: As evident from findings, the position of women across the two caste categories differs amongst these states with a need to empower women at an aggregate level. Indeed the role of cultural

traditions for instance matrilineal family needs to be considered while framing the targeted approach specific to each of the North-eastern states rather than an umbrella approach.

Paper ID-102

Extent of adherence to the Policies on Provision of Abortion services and challenges faced by the providers in Rural Assam
Labhita Das

Background: An increasing proportion of induced abortions in India are performed in rural areas. For unknown reasons the number of rural abortion providers in India are less in numbers. This study explored the experiences of rural physicians providing abortion services in rural Assam.

Methods: The mixed methods approach was used. Abortion Providers Survey employed self-administered questionnaires, distributed to some selected abortion providers in the hospitals in rural setting of Assam. The optional semi-structured interviews were also used for the analysis. Interview questions probed the experiences, facilitators and challenges faced by abortion providers, and their future intentions. Interviews were transcribed and analyzed using thematic analysis.

Results: fifteen interviews were completed and transcribed. Emerging themes differed between the rural providers. Some rural providers worked within private clinics in nearby towns and reported a good environment. Rural physicians, providing both medical and surgical abortions within hospitals, reported challenging barriers to provision of the services including operating room scheduling, anesthetist and nursing logistical issues, high demand for services, unavailability of equipment, referral services, professional isolation, and scarcity of replacement abortion providers. Many rural providers identified a need to ''fly below the radar'' in their small community.

Discussion: This study of experiences among rural and urban abortion providers in Assam identifies addressable challenges faced by rural physicians. Rural providers expressed a need for increased support from administration and policy. Further challenges identified included desire for continuing higher professional education opportunities, and for available replacement of abortion providers.

Paper ID-107

Spatial Pattern and Determinants of Anaemia and its association with Mosquito-Borne Disease Vulnerability in Eastern and North Eastern India

Lobsang Tshering Bhutia and Aparajita Chattopadhyay

Background and Objective: Anaemia is a critical public health issue. Women and children are most affected by its adverse effects, such as reduced daily work productivity, maternal and perinatal mortality risk etc. At the regional level, Eastern and North-East Indian states show contrasting differences in anaemia prevalence among the states in both males and females. This study delves into the spatial patterns, determinants of anaemia, and its association with mosquito-borne disease vulnerability, particularly in Eastern and North-Eastern India.

Methods: Using National Family Health Survey (NFHS-5, 2019–21), all females and males aged 15-49 were stratified to Eastern and North Eastern India. Bivariate and Binary logistic regression analyses were used to determine the impact of environmental, health and demographic factors on anaemia separately for females and males. Spatial techniques such as Getis-Ord Gi statistics, Analytic Hierarchy Process, and Bivariate Local Moran's I were used to map spatial clustering of anaemia, mosquito-borne disease vulnerability, and association between them.

Results: Anaemia prevalence was higher in females (58.66%) than in males (28.35%). Logistic regression output revealed that lower altitudes, higher temperatures, higher rainfall, increased drought episodes, and denser vegetation had higher odds of anaemia in females and males. Factors such as an increased number of

children, being underweight, age 15-24, lower levels of education, Hindu, Tribal status, and belonging to the poorest wealth categories were also risk factors for anaemia. We used spatial techniques to map the concentration of anaemia. We found that the humid subtropical region had a higher concentration of anaemia, which was highly associated with vulnerability to mosquito-borne diseases such as malaria, dengue, and chikungunya.

Conclusion/ Policy Implication: We recommend targeted efforts for females based on these findings. Alongside, strengthening existing national programs for vector-borne disease control in highly vulnerable regions to eradicate the disease that further exacerbates the risk of nutritional deficiency.

Paper ID-109

Prevalence and factors associated with adverse pregnancy outcomes in Northeast India: evidence from recent demographic health survey

Mahadev Bhise

Background:
Globally, the majority of women die due to complications during childbirth or pregnancy, and most maternal deaths occur in low- and middle-income countries. The burden of adverse pregnancy outcomes such as stillbirth, miscarriage, and abortion is still high in India. This study investigates the prevalence and factors associated with adverse pregnancy outcomes in Northeast India.

Data and Methods:
The data for this study were obtained from a nationally representative sample of the National Family Health Survey (NFHS 5-2019-2021). Women aged 15-49 in Northeast India whose last pregnancy occurred in the five years preceding the survey (N=36059) are included in the analysis. The Chi-square test is used to analyze the relationship between the estimated prevalence of adverse pregnancy outcomes and their correlates. The adjusted Binary regression analysis is carried out to investigate the effect of background characteristics on the prevalence of adverse pregnancy outcomes.

Findings:
The overall prevalence of adverse pregnancy outcomes is 11.4% in Northeast India, and it varies from 6.1% in Meghalaya to 22.9% in Manipur state. The prevalence of adverse pregnancy outcomes is higher among women aged 40-49 years (22.9%), belonging to an urban area (15.4), higher educated (12.7%), and going outside for office work (19.7%), and also higher among hypertensive women (12.3%), overweight/obese women (17.1%), tobacco users (14.8%), and alcohol users (17.2%) as compared to their counterparts. Binary logistic regression results show that the women in the age group (30-49 years), engaged in Manual work, belonging to Hinduism, obese, tobacco, and alcohol user show a higher risk of adverse pregnancy outcomes than their counterparts and are also significantly associated with adverse pregnancy outcomes.

Policy implication:
The risk of adverse pregnancy outcomes is higher in Northeast India, and there is wide variation in adverse pregnancy outcomes among Northeast states and socio-demographic variables. Therefore, this study emphasizes the need for region-specific, comprehensive, and quality maternal health care and intervention studies in these target groups.

Paper ID-112

Exploring the association between parental education and Bodo women's educational attainment in Assam.

Manali Swargiary & Dr. H. Lhungdim

Background & Objectives: The study explores the association between parental education and Bodo women's educational attainment in Assam. The research focuses on the Bodo tribe, one of the largest indigenous communities in Assam, India, with a rich cultural heritage and a history of marginalization. Despite efforts to promote education in the region, Bodo women continue to face significant barriers to accessing and completing their education.

Data and Methods: The data was collected through a quantitative survey conducted among 420 Bodo women aged 18-60 in all the districts of Bodoland. The survey collected information on the educational background of the participants, their parent's education level, and socioeconomic status. The data were analyzed using descriptive statistics and regression analysis to examine the association between parental education and Bodo women's educational attainment while controlling for other factors that may influence this relationship.

Results: Findings suggest parental education's significant impact on Bodo women's educational attainment in Assam. It is found that parental education in all the districts of Bodoland, Assam is minimum or nothing. The data indicates a positive correlation between parental education and women's educational attainment. Most women whose parents have received no education or bare minimum education have attended up to primary school or no schooling. The study also found that financial problems, lack of motivation, and failure in class are among the main reasons for dropout among Bodo women in the region. Additionally, the data reveals that the income and occupation of the father play a critical role in determining women's educational attainment.

Policy Implication: These findings emphasize the importance of family support and community involvement in promoting women's education. Interventions promoting education among marginalized communities in India, empowering Bodo women, and enhancing community engagement are highly recommended.

Paper ID-116
Non-viable Pregnancy Outcomes among Women in Manipur: A Spatial Clustering and Its Determinants

Meena Hijam, Dr H Nirendrakumar, Alfred Rozer Nandeibam, Sharatchandra Haobijam, Naorem Arun

Background: Non-viable pregnancy outcomes and complications has remained unacceptably high, particularly in low and middle- income countries. In India, Manipur reported the highest prevalence of non-live births in 2021(NFHS-5). **Aim:** The study aims to identify the spatial clustering and determinants of non-viable pregnancy outcomes in Manipur. **Data and methods:** We utilized the data of fourth and fifth rounds of nationally representative surveys; NFHS-4 (2015-16) and NFHS-5 (2019-21). The Getis-Ord Gi* spatial statistical tool was used to identify high and low hotspots clusters and logistic regression for regression analysis.

Results: The major hotspot clusters for non-viable pregnancy outcomes were found in valley districts of Manipur, namely Imphal East, Imphal West, Thoubal and Bishnupur. Further, decline in hotspot clusters can be seen from 2016 to 2021. Results also showed that mother's age and schooling were important determinants for non-viable pregnancy outcomes. **Conclusion:** The results highlight the need to develop district- centric antenatal care services to reduce the risk of pregnancy related complications. Intervention should be tailored according to the lifestyle choices and unique cultural practices of women residing in northeastern states. It may also be beneficial to study the factors associated with declining hotspot clusters in some districts of Manipur.

Paper ID-120
Role of matriarchal and patriarchal in use of modern contraception and its perception among currently married men in Northeast India.
Brihaspati Mondal, Moatula Ao andProf. Pralip Kumar Narzary

Background: India is male dominated society but seldom men get involve in reproductive health issues. The negligence of men involvement in reproductive health often creates gender inequality which has a crucial role in determining contraceptive use.
Objective: To understand the role of matriarchal and patriarchal society on modern contraceptive use and its perception among currently married men in North-Eastern states of India.

Data: The study utilizes NFHS-5 (2019-21) among currently married men using current modern contraceptive in the age group of 15-54 years based on a sample of 9,323 in Northeast India.

Methods: Statistical methods like bivariate and multivariate analysis were used. In the analysis Meghalaya state is considered as 'matriarchal' state and the rest North-Eastern states as 'patriarchal' states

Findings: Result found that highest percentage of using current modern contraceptive is in Sikkim (38%) and lowest in Manipur (9%) and more than half of the users' used pills followed by male condom and female sterilization. Logistic regression analysis found that in matriarchal state preference for 3+ daughters among currently married men they were less likely to use modern contraception($p < 0.01$). Nevertheless, other patriarchal states the preference for 3+son were less likely to modern use of contraception ($p < 0.01$). In matriarchal state men who agree that women using contraception becomes promiscuous they were more likely to use modern contraceptive($p < 0.01$). In patriarchal states men who agree that contraceptive is women's business they were more likely to use modern contraceptive ($p < 0.01$).

Policy implication: Both in matrilineal and patriarchal society use of contraceptive is more inclined towards women's responsibility. Men needs proper information about male contraceptive methods about its safety and efficacy. Thus, more awareness and involvement of men in family planning is essential else contraceptive use will always remain a burden on the women.

Paper ID-130
Association of flooding duration with short term health outcomes in Assam
Neelkamal Alomayan Kalita

Background

Although Diarrhoea and Acute Respiratory Infections are not severe morbidity causes for adults among children, they account for more than 50 % of deaths yearly. Virtually no study has attempted to analyse the short-term health outcomes among children in Assam associated with flooding duration.

Objective

To assess the prevalence of short-term health conditions associated with flooding duration in Assam.

Data and Methods

The data used in this study has been taken from the fifth round of the National Family Health Survey conducted during 2019-2021.

The data on the mean duration of flood is collected revenue circle-wise from State Disaster Management Authority (SDMA).

Findings

Diarrhoea

The highest prevalence is seen in the areas which are generally flooded for less than five days and in those areas which typically remain flooded for more than 15 days and least prevalent in these areas with a flooding duration between 5-15 days.

Acute Respiratory Infection

The prevalence of Acute Respiratory Infection (ARI) among children is significantly associated with the duration of the flood. The areas that get flooded for 3-6 days are 1.8 times more vulnerable to ARI, and those exposed to flooding above ten days are 1.6 times more vulnerable to ARI.

Policy Implications

This research shows that Diarrhoea and ARI cause severe damage to the health of children. So if the government finds out its leading causes, spreading period, and the most vulnerable group, then it will react cautiously and supply the emergency care associated with the morbidity factors within the specific period to particular age groups to prevent child mortality in flood-prone areas.

Paper ID-140
Incident Diabetes and the contributing factors in North East India

Palak Sharma

Background and Objectives: Diabetes is a major public health concern in India, and its prevalence is expected to increase in near future. Despite the high burden of diabetes in the country, there is limited research on diabetes in the North-eastern states. The unique geography, culture, and lifestyle of this region presents challenges in the prevention and management of diabetes. This study aims to estimate the incidence of diabetes in the North Eastern states of India and identify the factors that contribute to Diabetes incidence.

Data and Methods: The study used data from the first wave of the Longitudinal Ageing Study of India for all individuals aged 45 years and above. Survival analysis techniques were employed to determine the incidence of diabetes, and the Cox proportional hazards model was used to identify the factors affecting its incidence.

Findings: The findings of the study reveal that incidence of diabetes in the North-east India is 2.63 cases per 1000 person-years, estimated for a period of 46 years. The highest incidence rate was found in Sikkim, followed by Manipur and Tripura. By the age of 80 years, approximately 24% of individuals developed diabetes in this region, with the highest probability of developing diabetes found in Sikkim (45%). The results also indicate that the probability of being diagnosed with diabetes decreases with increasing age. However, females showed a 7% higher probability of developing diabetes compared to males. Obesity and physical inactivity were found to be the most significant factors affecting the incidence of diabetes in the North Eastern states of India.

Conclusion: Findings underscore the need for effective strategies to prevent and manage diabetes, particularly among women and those with obesity and physical inactivity. Further research is necessary to better understand the unique challenges of diabetes prevention and management in this region.

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Paper ID-141

High burden of anaemia and its socioeconomic determinants among women and children in Northeast India: Detecting spatial clustering

Pankaj Kumar Patel

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Abstract:

Background & Objective: Anaemia is a significant public health concern worldwide, particularly among women and children in developing countries. North-eastern states of India have been reported to have a high prevalence of anaemia among women and children, which considerably impacts their overall health and quality of life. Therefore, this study aimed to identify the spatial clustering of anaemia and its socioeconomic determinants among women and children in Northeast India.

Data Source and Methodology: The study used data from the NFHS-5 conducted in 2019-20. The study employed spatial autocorrelation analysis to detect the clustering of anaemia among women and children using ArcGIS. Summary statistic and multilevel logistic regression models have been used to identify the socioeconomic determinants of anaemia.

Results: The research discovered that there is a high prevalence of anaemia among women aged 15 to 49 years who are anaemic in various regions in Northeast India, including Assam (65.9%), Arunachal Pradesh (43.3%), Meghalaya (53.8%), Manipur (29.4%), and Mizoram (36.8%). Furthermore, children between the ages of 6 and 59 months who are anaemic (<11.0 g/dl) in these regions were also found to have high rates of anaemia, such as in Assam (68.4%), Arunachal Pradesh (56.6%), Meghalaya (45%), Manipur (42.8%), and Mizoram (46.4%). The study also identified a significant clustering of anaemia in the area through spatial autocorrelation analysis. Additionally, the research found that various socioeconomic factors, including age, education, wealth, occupation, and urbanization, were significant determinants of anaemia.

Policy Implications: The findings of this study highlight the need for public health interventions to address the high burden of anaemia among women and children in Northeast India. Policymakers should focus on

improving access to healthcare services, promoting education, creating awareness, and improving the socioeconomic conditions of the population to reduce the prevalence of anaemia in the region.

Estimating Dementia-free Life Expectancy (DemfLE): do social differences lead to decreased DemfLE in North-eastern India?

Poulami Barman

The primary objective of this study is to explore if there is a variation in dementia-free life expectancies(DemfLE) across the northeastern states of India. With increasing global life expectancy (LE), recent literature has grown interested in whether the extra years gained are lived in good health. DemfLE can be defined as the number of years lived with and without dementia, providing information about the quantity and quality of life lived at a population level. Since the risk of dementia is most significant in late life, it would be interesting to know how the number of years with this condition will likely be affected by the reduction in old-age mortality. Initially, NFHS 5 data has been used to provide information on death(ASDR), life expectancy at birth by socio-economic status like caste, religion for the northeastern region of India. Then the study used the Sullivan method to combine region-level life expectancy data with estimates of age and sex-specific prevalence of dementia from LASI data. This method uses the current prevalence of health conditions observed in the population combined with the population's mortality rates from independent data sources to divide the life table into years lived with and without dementia for the average person in the population. The overall LE at birth for the North East region of India is approximately 72 years. The LE at birth in Assam is the lowest in the country- 63.9 years. Thus, the present study will provide estimates of DemfLE at the northeast region level to explore whether these gains in years in life expectancy are healthy years or years living with dementia. Understanding the factors causing the differentials in DemfLE are crucial. It will enable the policymakers to prevent dementia, slow its progression, and narrow the gender differentials.

Paper ID-150

Men's Attitude Towards Wife-beating in North-East India: Understanding the Pattern and Trend

Authors: Prasenjit De and Dr. Manas Ranjan Pradhan

Background and Objectives

Intimate partner violence (IPV) is a major human rights violation and a global public health burden. It encompasses different forms, including wife-beating, which is rooted in the patriarchal notion that women are the property of their husbands. This study aims to explore the shifts in attitudes towards justification of wife-beating among men in North-East India from 2005-06 to 2019-21 and also to identify the socio-demographic factors that contribute to these changes.

Data and Methods

The present study utilized data from the last three rounds of the National Family Health Survey (NFHS): NFHS-3 (2005-06), NFHS-4 (2015-16), and NFHS-5 (2019-21) with a total sample of 38120. The primary outcome variable of this study was men's attitudes toward wife-beating. Household and sexual autonomy as two key predictors were used in this study. Descriptive statistics, bivariate percentages, and binary logistic regression were used to determine significant predictors of men's acceptance of wife-beating. All the statistical analyses were performed using Stata.

Findings

The justification of wife-beating for at least one of the seven circumstances among North-East Indian men increased from 34.47% in 2005-06 to 36.58% during 2015-16 and again slightly reduced to 35.97% in 2019-21. Men with an authoritarian attitude toward household autonomy (AOR: 2.19, CI: 2.09,2.29) and sexual autonomy (AOR: 1.38, CI:1.31,1.44) were more likely to justify wife-beating than their egalitarian counterparts. Men with lower educational attainment, those belonging to younger age groups, those

exposed to a family history of violence during childhood, and men who drink alcohol are associated with an elevated risk of developing abusive attitudes toward wife-beating.

Policy Implication

The findings suggest that national and local policies and programs should focus on target-based approaches such as gender equality awareness among youth, access to higher education, poverty reduction, and clinic-based interventions to influence individual-level attitudinal change in a positive direction.

Paper ID-152
Out of pocket Expenditure and Financial hardship among Patients Seeking Cancer Treatment in India: A study of Punjab and Bihar
Priyanka Yadav

Background and Objectives: It is challenging to quantify "the cost of cancer care in India" because it varies greatly depending on geographic region, socioeconomic level, and the kind and stage of cancer. The objectives of this study are to identify the areas of out-of-pocket (OOP) expenditure in the lives of cancer patients and assess the magnitude of that spending, to evaluate the possibility of OOP spending in context of patient characteristics, and to assess the financial burden on patients' relatives.

Data and Methods: 300 cancer patients were interviewed by an open ended questionnaire. They were asked about their OOP payments during their cancer treatment, the nature of each payment, and whether it had imposed a financial burden on them. A logistic regression and ordered logit models were used to estimate the probability of OOP expenditure and the probability of financial burden, respectively.

Findings: 94% of cancer patients and their relatives incurred OOP expenses during their treatment. In case of hospitalization, male spends more in comparison to females, as women are left behind in case of healthcare. The probability of paying OOP for medication was significantly higher among younger patients. In case of indirect cost, the female spends more as they are accompanied by family members. The probability of spending OOP on a private hospital is more in comparison to public hospital. The probability of a financial burden due to OOP was higher among those patients who are without insurance.

Policy Implications: Most treatment costs for cancer were paid out-of-pocket by patients and catastrophic expenditure was common. Treatment attrition rates at tertiary centers were low, suggesting greater attrition at previous stages of care. Better financial protection may allow more patients to receive comprehensive cancer treatment while avoiding household financial catastrophe.

Paper ID-157
Migration for Education in India: With Special Reference to North-Eastern States
Rahul and Kunal Keshri

There is one section of the population which migrate to get better education, skills and employment. Due to unequal development, people move from one area to another in search of better educational and health facility. In India, despite having a large volume and great significance in all sphere of life, migration of students for their education within the country did not get attention of the researcher as well as policy maker in India. However, the present study based on various available secondary data, has tried to study the magnitude, differentials and correlates of educational migration at state level on one hand, and development of education on another at state level with special focus on North-eastern region of India. The number of migrants who moved for education were 4.45 million that constitutes about 1.2 per cent of the total migrants in the country. A majority of these migrants are intra-state whereas only 14 per cent are inter-state migrants. Further, most of the inter-state educational migrants are male who originated from rural areas. The rate of migration have been found to be highest in the state of Delhi followed by Uttarakhand, Karnataka, Himachal Pradesh, Maharashtra and Tamilnadu. Despite having comparatively more expanse of share of GDP on education as well as increase in the higher educational institutions, the states of North-east are sending more students for getting education to the other mainland states than they are receiving for the same. More

than three-fourths of the educational migrants from North-east India moved to mainland states of the country; mainly to the state of Karnataka, Maharashtra, and Delhi. Interstate migration have been found to be highly positively associated with the per capita income, urbanization level, gross enrolment ratio in higher education and density of higher educational institutions. The poor quality of educational facility such as number of higher education institutions, and high rate of out-migration from all North-eastern states and other mainland states should be the major concern for policy makers in India.

Paper ID-158
Infant and young child feeding practices and its determinants in Assam, India Insight from NFHS -5
Rahul Sen and Sameer Kumar Jena

Background: Infant and Young Child Feeding (IYCF) is a set of well-known and common recommendations for appropriate feeding of new born and children under two years of age and is a critical component of care in childhood. Infant and young child is the future of the nation and constitute the most important human resource of any country. Adequate nutrition in first 24 months through optimal infants and young child feeding is fundamental for development of a child to its fullest potential.

Objectives: The main aim of this study is designed to assess the prevalence of optimal IYCF practices and its determinants in Assam .

Data and Method: In this study we are using National Family Health Survey Five data which is recently released data (2019-21). Women's or Individual Recode- file is utilized.

Result: Present Study found that exclusive breastfeeding for the first six months of life is the norm in Assam, with 72.7% of infants under six months exclusively breastfed. However, the proportion of children who continue to be breastfed at 12 months of age drops to 54.8%, and only 38.6% of children between 6-8 months are receiving both solid and semi-solid foods in addition to breast milk. The survey also found that a significant proportion of children under five years of age in Assam are malnourished, with 36.4% of children stunted, 18.7% wasted, and 31.3% underweight.

Policy Implementation: -The policy implications of IYCF practices in Assam are:

   a. Launch awareness campaigns to educate parents and caregivers about the importance of breastfeeding and complementary feeding.
   b. Promote breastfeeding by providing information and support to mothers. Etc

Paper ID-162
Knowledge, stigma, and the goal to end tuberculosis: findings from a cross sectional study with persons on tuberculosis treatment amongst Tea Garden workers in Dibrugarh, Assam
Rajiv Ranjan, Rehana Begum, Atreyee Sinha, Arin Kar, Joseph Francis Munjattu and Karthikeyan K

Background and Objectives:
The tea garden labourers' community (TGLc) is one of the marginalised groups in Assam and adds to burden of tuberculosis (TB) in the state. Assam needs to accelerate TB tests to achieve the Centre's goal of conducting 1500 tests per one lakh population for TB detection. Earlier this year, the Assam government announced the commendable goal of reducing the TB infection rate from 217 per lakh as in 2015 to 44 per lakh by 2025 under the ongoing NTEP program. KHPT's USAID supported project, Breaking the Barriers, aims to accelerate the goal of TB free India in specific geographies across four states - strategically targeting the most vulnerable populations.

Data and Method:
In the year 2021, October-November, a cross sectional study with sample of 306 persons with tuberculosis from TGLc was conducted. The study covered socio-economic conditions, out-of-pocket expenditure, time to

treatment seeking from the onset of symptom, number of visits made before initiation to the treatment of tuberculosis, and their perceptions and experience on stigma. Uni and bi-variate analysis were carried out.

Results:

About 95% was perceived any form of stigma and 41% experienced stigma from, which is significantly higher among male (45%) than female (34%). A significant 47% of those who did not have comprehensive knowledge about TB experienced stigma as compared to 23% among those who had comprehensive knowledge. Stigma experienced from community was highest (31%) followed by hospital/clinic (21%) staff. On an average delay to initiate treatment was 36 days from onset of illness, contributed equally by personal and system level delay. The average personal delay was more by two days among those who faced stigma [Mean:19, CI: 15-23] as compared to those who did not experience stigma [Mean:17, CI:15-20]. The difference was higher by around four days among those who experienced stigma from the community [Mean: 21, CI: 16-25] compared to those who did not [Mean: 17, CI: 14-19].

Conclusion

Association between knowledge about tuberculosis and stigma has been emphasised in various studies and it is true amongst the population of TGLc as well. Stigma is a major obstacle to prevention of TB and also in initiation and adherence to treatment. In addition to raising awareness levels through context specific campaigns, addressing stigma to improve treatment seeking and adherence we need solutions which can change behaviour of the community.

Paper ID-164

Factors associated with Correct Knowledge On COVID-19 Among the Economically Productive Age Group living In an International Border Area in Northeast India

Dr. Rajkumari Sanatombi Devi

Coronavirus Disease 2019 (COVID-19) is the ongoing pandemic affecting people of different age group irrespective of whether it is a developed country or a developing country. The objective of the study is to identify the factors associated with the correct knowledge on COVID-19 among the economically productive age group living in an international border area of Manipur.A descriptive cross sectional survey study was carried out by collecting information from 50 individual using purposive sampling techniques. The mean age of the respondent was 29 years. Fifty eight of them were male. Thirty percent of the respondents were Hindu. The number of unmarried was more than the number of married persons. There was only one illiterate person in the study population. Majority of them were students. The mean scores of knowledge were 10.72 ±1.4. The overall percentage of having adequate knowledge was 96%. Age and occupation were found to be the factors associated with correct knowledge on COVID-19. The number of case fatality and positive cases against the disease can be reduced only when there is a change in the behaviour adopted by different community living in the international border area Moreh in Manipur.

Paper ID-172

Religion Wise Population Change in Eastern States During 2001 to 2011 Census

Prof. Tej Bali Singh

Background: Population growth influences the requirement of livelihood resources, to fulfill essential human rights and other related needs. The population of India in the 2001 census was 1028.6 million which increased in the 2011 census up to 1210.8 million. This shows a 17.74% decadal growth rate. The growth was not uniform religion-wise at the national level as well as in geographical areas. The objective of this study is to find out the percentage distribution of the population religion-wise in the eastern states. And to find out the decadal growth rate state-wise and religion-wise.

Material and Method: For this study census data from the 2001 and 2011 censuses are used.

Result: The Muslim population decadal growth during the 2001 to 2011 census was 5.56% at the national level which it is increased by 12% in Sikkim, 3.7% in Arunachal Pradesh, 29% in Nagaland, 16% in Mizoram,

7.5% in Tripura, 2.7% in Meghalaya, and 9.7% in Assam. The Hindu population growth rate is observed in negative for all the eastern states varying from (-2.38% to -0.62%).

Conclusion: It is concluded that the growth rate for the Muslim population is increased in all the states except Manipur whereas the population of Hindus decreased in all the states.

Paper ID-180
Health and economic burden due to alcohol related liver diseases in the North-eastern states of India: a Markov probabilistic model approach

Dr. Samba Siva Rao Pasupuleti

Background and Objectives
Alcohol drinking is a major risk factor for population health worldwide, including liver diseases such as alcoholic hepatitis, steatosis, steatohepatitis, cirrhosis, and fibrosis. In the north-eastern states of India, the percentage of people drinking alcohol is higher than that of all of India, leading to a higher burden of alcohol-related liver diseases (ARLD). This study estimates the health and economic burden due to ARLD for various states in northeast India for 2021 and compares it with that of the burden at the all-India level.

Data and Methods
This study uses a Markov probabilistic modelling approach to estimate the health and economic burden of ARLD. The health impact is estimated by estimating total deaths, years of life lost, and disability-adjusted life years (DALYs). The economic burden is estimated under two scenarios: current healthcare seeking preferences and a hypothetical situation in which all ARLD patients are treated in public healthcare systems. Data is gathered from existing literature.

Findings
The annual deaths due to ARLD per million population at the all-India level are estimated to be 195, while the same is estimated to be 245 for Mizoram, 310 for Assam, 337 for Meghalaya, 379 for Manipur, 559 for Sikkim, and 766 for Arunachal Pradesh. The total cost of treating ARLD in the society in various North-eastern states is more than three times the revenue from alcohol taxes to various state governments in north-eastern India.

Policy Implications
These findings of this study offer data that can be used to develop public health policies on alcohol regulation, reduce the amount of money spent treating ARLD, and cut patients' out-of-pocket expenses. Social engineering and preventative initiatives are needed to reduce the high burden of ARLD in the north-eastern states of India.

Equity and Achievement in Access to Secondary or Higher Education among Women in India and its North-eastern region

Sanjay Kumar Pal

Background: Education is an important factor for the evolution of the society, which play important role in all type of intervention for the society. India is endowed with human resources that can be enlightened and empowered through educational development. Education is a human right and a necessary tool for achieving equality and development goals.

Objective: This study aims to identify the trends in secondary or higher education equity among women in India and its selected states.

Data Method: The analysis was used nationally representative National family Health Survey (NFHS) third and fourth and fifth round data from women aged 15-49 years in India to see how the inequity changes in recent one and half decade. Individuals were ranked by wealth quintile, urban/rural populations were stratified, and a concentration index—a statistic that combines data from all wealth quintiles to analyse disparities—was calculated.

Findings: The results of the study suggest in India, northeast region increases from 53% to 70%. Mizoram's women have the highest (74% and 85%) level of secondary or higher education, whereas Arunachal Pradesh's women have the lowest (40% and 66%) level of secondary or higher education. The results of concentration index show that urban women have more equity to be secondary or higher education than rural women. Among the selected states, for the third round of NFHS, urban (0.07) areas of Mizoram and rural (0.20) areas of Manipur have higher equity in access to secondary/higher education, whereas for the fifth round of NFHS urban (0.035) and rural (0.098) areas of Sikkim have higher equity of getting secondary or higher level of education among women.

Policy Implications: Inequity in secondary or higher education requires multiple complementary approaches to address the structural drivers of unequal access of education level in the selected states.

Burden of Non-communicable diseases due to substance use among elderly in the Northeastern states of India: a study based on LASI survey: 2017-18
Sasanka Boro and Nandita Saikia

Background and Objective

The north-eastern region of India has a relatively high prevalence of substance use, which together with poor dietary practises and a lack of physical activity is one of the key risk factors for NCDs among elderly population in the region. Objective of the study is to find the prevalence of NCDs, its relationship to substance use in the North Eastern States of India.

Data and Methods

Data from Longitudinal Ageing Study in India (LASI Wave-I, 2017–18) were drawn to conduct this study. Response variables were the occurrence of NCDs. The bi-variate and binary logistic regression were used to predict the association between communicable and non-communicable diseases by various socio-demographic and health parameters.

Findings

The study revealed pronounced physical inactivity among elderly in north-eastern region of India and found smoking tobacco, alcohol consumption significantly related to health. Prevalence of all the NCDs among the people belonging to urban area (42.93%) is higher than the people belonging to the rural area(30.03%). Hypertension (30.02%) can be seen as the most prevalent disease among the following given NCDs followed by Diabetes (7.89%). We found that those who smoked earlier, their odds of having hypertension and diabetes were only (OR = 1.005; C.I. = 1.015–1.008) and (OR = 1.015; C.I. = 1.009–1.369) times more as

compared with non-smokers whereas the chances of having Cancer is triple (OR = 2.93; C.I. = 2.86–3.01) if individual has past smoking behaviour after controlling for socio-demographic and physical activity variable.

Policy Implications

The burden NCD along with the high intensity of substance use among the elderly population requires immediate intervention. These unhealthy behaviors are more prevalent among socioeconomically disadvantaged populations. In a developing country like India, preventive measures, rather than curative measures will be cost-effective and helpful. Further, focusing on community interventions among older adults and among vulnerable groups might bring some required changes.

Paper ID-202
Environmental Health Problems among Children in North-eastern States of India
Atanu Ghosh, Sourav Dey and Rajdeep Sinha

Background and Objectives

In the last 15 years, India has faced the largest number of under-five deaths among all other countries, with regional disparities. Childhood diarrhoea and pneumonia (ARI) are the major cause of U5 death in low- and middle-income countries, including India. With a wide variation in development indicators (including health) and 14 aspirational districts (NITI Aayog 2018), the North-eastern states (NES) of the country are the most versatile region for different ethnic and cultural groups living in a mixture of hills and plains topographically, is most prone to the environmental health problems.

Data and Methods

Using the data from the latest round of the National Family Health Survey (2019-21) for the eight NES, we have tried to understand the prevalence of environmental health problems like ARI and diarrhoea and their correlates. Apart from bivariate and logistic regression analyses, we have also checked the spatial dependency to identify the regional variation in diarrhoea and ARI among U5 children in NE states.

Findings

Among the NE states, Mizoram is found to be better off, and Sikkim & Assam are worse in terms of child health outcomes. Spatial clustering has been found across the NES and among its districts for both diseases. Socioeconomic and demographic characteristics are found to have a significant impact on the selected child morbidity. While household infrastructure and environmental factors have majorly influenced Diarrhoea and ARI in NES.

Policy Implications

Policies aimed at achieving the goal of reduced child mortality should be directed toward improving the household's environmental and or socioeconomic status if this goal is to be realized. This study can be regarded as a bridge to understanding the progress made and considering implications for achieving the Sustainable Development Goal (SDG) child survival targets in NES.

Paper ID-209
Female Empowerment Through Entrepreneurship Development: A Case Study Of Kokrajhar District Assam
Mrs Tanuja Basumatary' Dr Arabinda Debnath,Prof Ayepam Ibemcha Chanu

The status of females in Indian society has changed from time to time and the present position of females in society is the index to the standard of social organization. The empowerment of females is one of the central issues in the process of development of countries all over the world. A few decades back, females were

married at an early age and their focus was centred on their family. The majority were uneducated and ignorant of the conditions prevailing in the country. The post-independent period has witnessed a significant improvement in female's education in India. The Government of India has made empowerment of women as one of the principal objectives of the Ninth Five Year Plan (1997-2002) and also declared 2001 as the year of 'Women's Empowerment. As per Census report 2011,female lieracy rate in Kokrajhar district has increased to 56.53% in rural   and 83.44% Urban areas. This study has been conducted to know whether real empowerment comes from entrepreneurship. For the study 300 female entrepreneurs have been selected randomly from the list of registered Female Entrepreneurs under DIC Kokrajhar. The study is based on both primary and secondary data,the primary data are collected through structured Schedule and Personal Interview. The findings of the study have revealed that solid base has been formed through entrepreneurship in the rural and urban area of the study ,which provides a compatible atmosphere for enlightening and empowering the female entrepreneurs. Female entrepreneurs who have been working for long time on traditional form of business, have slowly switched over to the modern business track through trainings. This study will help females to take up entrepreneurship and empower themselves by improving their economic strength.

Paper ID-211
Social Correlates and Treatment-Seeking Behaviour Associated With Tuberculosis In India: A Focus on North-Eastern States

Tingwang

Background & Objectives

India continues to be the highest tuberculosis-burdened country with over 28% share of the total world burden according to Global TB Report 2022. According to the NFHS report, the overall prevalence of tuberculosis decreased from 316 per 100000 usual household residents to 229 per 100000 usual household residents between 2015-16 and 2019-21. The North-Eastern states had the highest prevalence of tuberculosis, according to NFHS-5, with the top three states with the highest prevalence hailing from the Northeast region. Despite India's involvement in various TB control activities since its first recognition in 1912 and the launch of the first National Tuberculosis Control Programme in 1962, tuberculosis (TB) remains one of India's major public health challenges, especially in marginalized communities (Dhamnetiya et al., 2021). The objective of the study is (1) To examine the prevalence of tuberculosis and see the trend of TB in India and the Northeastern states. (2) To examine and understand the various socio-economic and demographic determinants of tuberculosis in India. (3) To investigate the differences in treatment-seeking behavior across Northeast India based on various social characteristics. (3) To comprehend the dynamics of tuberculosis transmission in India.

Data & Method

We have used data from different rounds of the National Family Health Survey(NFHS) as well as from the Sample Registration System (SRS) and WHO Global TB Report to achieve our study goals and objectives. We used prevalence maps to show the number of tuberculosis cases per 100,000 people across the country, with a focus on the Northeast states. To determine the relationships of various factors to the dependent variable, tuberculosis, multivariate analyses were performed using binary logistic regression. We use differential equations to represent tuberculosis's transmission dynamics and its progression. The simple SEIR model is used to explain the spread of tuberculosis across the country.

Findings

The findings of the study were consistent in showing the association between various socio-economic and demographic factors in Northeast India. The analysis showed that being born in the North-eastern states was associated with 52% higher odds (OR=1.520, 95% CI: [1.329, 1.738]) of having TB compared to being born in developed states in India. Results indicate that the distribution of tuberculosis cases were disproportionately concentrated among the poor and illiterate individuals and those from traditionally disadvantaged social

groups such as the Schedule Tribe and Other Backward Class. Findings also showed the high dependence of TB patients on the public health sector for treatment in the northeastern states.

Policy Implications

The study reveals a high prevalence of tuberculosis in the Northeastern states and demands immediate attention from policymakers and healthcare providers. The study also reveals significant gaps in the public sector's TB care cascade, which must be addressed as a priority because more than half of all TB patients seek public care and deserve better quality care than they currently receive. More study is needed in India's Northeastern states to examine the causes of the high incidence of TB, including social, economic, and environmental aspects.

Paper ID-213

Number of years life lost (DALY) due to multi-morbidity among the older adult in West Bengal

Ujjwal Das and Dr. Nishamani Kar

Background

The disability-adjusted life year (DALY) is a composite measure of disease burden, including morbidity and mortality. The present paper examines the number of years of life lost among older adults to various morbidities in the state of West Bengal.

Methods

The present study used the 1st wave of LASI (Longitudinal Ageing Study in India) data which was conducted in 2017-18. DALYs were computed for 3933 men and women aged 45 years and above. DALYs are the sum of the Years Lost due to Disability (YLD) and the Years of Life Lost (YLL) due to premature mortality. Premature mortality was defined as death before the estimated date of individual Life Expectancy (LE). We also analyzed HALE by decomposing years of life gained into years spent in good health and in poor health based on socio-demographic conditions.

Results

The median estimated YLD per 1000 cases (due to multi-morbidity) adjusted for co-morbidity was 545 YLD/1000 (95% interval: 513–585). YLD varied from different kinds of morbidities due to socio-economic conditions. YLD was highest in lung diseases and lowest in diabetes prevalence among older adults. The total number of years of life lost in lung diseases up to age 75 years by the substance behavior range between 10.9 years (CI: 11.5-13.2) for the poorest quintile (Q1) to 25.3 years (CI: 24.8-25.9) for the wealthiest quintile group (Q5). While people with diabetes had lost 1.28 healthy years of their life (CI: 1.10- 1.46) in the poorest quintile to 4.9 years of their life (CI: 3.25- 5.26) in the wealthiest quintile.

Conclusion

The burden of disabling conditions has serious implications for health system planning and health-related expenditures. Despite the progress made in reducing the burden of communicable diseases in the state.

Paper ID-226
Prevalence of undernutrition using low MUAC-for-age among
Karbi Tribal preschool (<5 years) children of Assam, India
Jyotismita Sharma

ABSTRACTS FOR POSTER PRESENTATIONS

Paper ID-51
Gender Equality in Matrilineal Society: A Case Study of Meghalaya
Mr. Birbai Basumatary and Miss Fidiarity Kharumnuid

Gender equality in matrilineal societies refers to the equal distribution of rights, opportunities, and responsibilities between men and women in societies where descent and inheritance are traced through the female line. Matrilineal societies, though rare, are found in different parts of the world, including India, Indonesia, and parts of Africa. In India, Meghalaya is a northeastern state, where the Khasi, Garo, and Jaintia tribes practice matrilineal traditions. In these societies, women play a significant role in the family and community and inheritance and property are passed down through the female line. Despite these customs, gender-based discrimination and inequality persist in various forms, including access to education, healthcare, economic opportunities and exclusively political aspects. Women are being drawn in decision making process, which in Dorbar a traditional village institution where women cannot raise her opinion. This paper will be based on existing literature, research and case studies to explore the challenges and prospects of achieving gender equality in matrilineal societies in Meghalaya. It will conclude that while the matrilineal traditions in Meghalaya offer some opportunities for women's empowerment, cultural and social practices continue to perpetuate gender-based discrimination and further efforts are needed to promote gender equality. These efforts include implementing legal frameworks that protect women's rights, providing access to education and healthcare, and promoting women's leadership and participation in decision-making processes.

Paper ID-56

Knowledge and Perspectives of Family Planning and Use of Contraceptives among Young Adults in Champhai Town, Mizoram, India.
Cicily VL Ruatpuii & Dr. K. C. Lalmalsawmzauva.

Background and objectives:
One of the main barriers in family planning among young adults is lack of knowledge in family planning and the use of contraceptives. The need for a mutual effort to instill knowledge in the minds of the youth has been underexplored. This paper examines the current knowledge of family planning, types of contraceptives and perceptions of young adults on their preference for the gender role of contraceptive users.

Data and methods:
Both primary and secondary data has been used. Especially primary data is used for analysis. Survey was conducted through close-ended questionnaire with 200 male and 200 female youths aged between 17-24 years who are currently enrolled in Government Champhai College.

Findings:
Findings conclude that many youths have little knowledge about family planning, although they are familiar with the term 'Family Planning'. It has been noted that 77.75% of youths are familiar with the term family planning and 77.25% also stated that they are familiar with at least one type of contraceptives among which condoms are the most widely known contraceptive among the male and female youths. However, 21.5% remained in the dark. 82.5% feel that sterilization should be performed in female while 14% favour it being performed in male. Regarding birth control, 54.5% prefer male users and 42.5% prefer female users.

Policy recommendations
More awareness regarding family planning and gender roles should be developed among the young adults, especially college students who are eligible to get married as family planning is not only about limiting number of children for couples but also a health issues both in term of individual and societal health of the country.

Paper ID-72
Reasons for Delayed Marriage Among Girls in Mizoram
F.VLH.Zuali and Dr. KC.Lalmalsawmzauva

Background and objectives:
Declining fertility across the world is more and more complicated as it involves many factors in it. One of the major driver of drastic decline in fertility is delay marriage, especially among girls as mean age at marriage is on the rise all over the world and Mizoram is not an exception. The main objective is to find reasons behind the delayed of marriage among girls in Mizoram. Therefore, this paper explores the possible factors (education, social, economic and their personal issues) for the postponement of marriage in the study area.

Data and methods:
A detailed structured questionnaire was conducted purposively to unmarried girls in Mizoram who attained the age of 23 years through online survey in the midst of pandemics in the state of Mizoram during 2021. As it is online survey, the question of sample size is not arise here and we got response from 2,509 girls across the state.
We also use secondary data from District Level household Survey-4 (DLHS-4). According to DLHS-4, the mean age of marriage among girls in Mizoram is 23 years, which we considered as a minimum benchmark of this study and online questions have been sent to girls age 23 and above by asking why they are still single. For analysis we are using SPSS tool (bivariate) even though the online survey clearly displays in the in-built pie chart.

Findings:
Women's employment, attainment of higher education and difficulty to find the right person for life partner does have an extremely significant impact for the reasons behind delaying marriage among girls in Mizoram.

Policy implications:

Women are child bearers in the society and they are bound by fertility hour. Delaying marriage can led to decrease in the population of the state, and this continual decrease in population can further hamper the state's economy. We want to suggest to policy makers to popularize among the young women that delaying marriage and conceiving child at later ages increases the risk of infertility and diminish the changes of achieving one's desired fertility.

Paper ID-89
Impact Of Child Marriage: A Qualitative Exploration in Darrang Distict of Assam

Jyotika Deka

Background: Child marriage is a serious issue in the state of Assam, India. According to the National Family Health Survey (NFHS), the estimated rate of child marriage in Darrang is as high as 42.8 %,which is one of the highest in the country. Additionally, more than 16% of women who were 15-19 years of age, were already mother or pregnant at the time of survey. Despite the state government's efforts to address the issue, it remains a major problem in the state. The issue of child marriage in Assam is further compounded by the prevalence of social, economic and cultural factors. The traditional practice of dowry, poverty, illiteracy, lack of access to education, and the rigid gender roles prevalent in the state, all contribute to the problem.

According to National Crime Records Bureau (NCRB) data for the year 2019, the Darrang district had 23 cases of child marriages, the highest in Assam. However, the actual number of such cases is much higher in the region, especially among Muslims as many cases go unreported.

Objectives Method and Data: This paper looks at qualitative data collection methods (n=30). Through interviews and participatory observation, this qualitative research seeks to understand how child marriage

affects the lives of individuals and communities on a global level. In particular, the focus is on the effects of gender roles, social and cultural norms, and the economic and political context. Furthermore, the study will assess the effectiveness of current interventions in child marriage prevention and the potential for alternative approaches. Finally, the implications of the findings for policy and practice will be discussed.

Key Findings: The findings clearly brought out that the poverty is a major factor driving child marriage in the district, as families often see marriage as a way to reduce the financial burden of looking after a daughter. The study also brought out that the child marriage is closely linked to gender-based violence, including domestic violence and dowry-related violence. The qualitative study suggests that the girls who were married as children were more likely to experience physical and sexual abuse. Most of the girls who were interviewed, they were school dropped out. The girls also narrated that due to gender discrimination, they are not allowed to move freely and most of them had poor nutrition status. Girls who are married before the age of 18 are more likely to drop out of school, have poor nutritional status and be unable to access health services. 8. Child marriage has severe implications for the health and well-being of girls, their families and their communities.

The finding also point out how poor teacher-student ratio is leading to dropouts in schools of girl students particularly from the Muslim communities in Darrang which have led to increasing child and early marriage.

Policy Implication: In order to address this issue, the government of Assam has come up with several initiatives such as the Assam State Commission for Protection of Child Rights (ASCPCR), the National Commission for Protection of Child Rights (NCPCR) and the District Child Protection Unit (DCPU). These initiatives have been instrumental in helping to stop child marriages in Darrang. It is important for the government, NGOs and other stakeholders to continue to work together to create awareness about the dangers of child marriage, and to ensure that laws prohibiting such marriages are strictly enforced.

Paper ID-139
Spousal Violence in Northeast India: Special Reference to Manipur

Mr. Ongtham Kipjen Singh & Dr. Avijit Mistri

One in every three ever-married women in India is a victim of spousal violence. There is wide regional variation in domestic violence in India. In eight sister states of Northeast (NE) India, around a quarter of married women have ever experienced spousal violence. Manipur and Assam have persistently reported higher incidences and ranked in different rounds of NFHS. The study investigates the influencing factors for spousal violence in NE India along with level, trend and pattern by background characteristics, and Manipur is given special attention.

The published reports and unit-level data of NFHS since 2005-06 have been consulted. Within the data limitation of NFHS-5, around 13 predictors are identified, which are broadly classified under four categories- women, household, husband, and sociocultural characteristics. The states in NE are diverse in terms of ethnopolitical and cultural identity. The Binary Logistic Regression model helps to predict the significant determinants for spousal violence and controls the state-variant characteristics.

The most common type of spousal violence in NE is physical violence. Over one-third of ever-married women (18-49) in Manipur and Assam encountered it, followed by emotional violence. Slapping, pushing/something throwing, kicking/dragging, emotional violence- insulting or making to feel bad and physically forced for unwanted sex by the husband/partner are pervasive forms of spousal violence. Highly predictive determinants for spousal violence are the alcohol consumption of husbands, women's education, and occupation. The social determinant, religion, considerably influence the association. Women's work participation rate in NE is higher. Governments can take measures for women's safety in the work and domestic space to check the higher propensity of domestic violence. Only Mizoram and Nagaland have strictly prohibited alcohol by law. Manipur, suffering a higher level of domestic violence, partially revoked the alcohol prohibition. All the NE states will have to push a concerted policy against drugs.

Paper ID-149
Dynamics of Contraceptive Use among Women of Northeast India
Dr. Pranti Dutta and Dr. Aniruddha Kumar Baro

Introduction: Family planning programme has long-term wellbeing effects on women's reproductive health, since it allows women for spacing of pregnancy that reduces the risk of health problems due to childbearing. Despite of various steps taken for successful implementation of family planning methods, the discontinuation rate has increased in worldwide. Northeast India is found to be one of the lowest utlization of family planning methods among the Indian States. Previous study suggested that there is a need of awareness programmes and mass media exposer to increase the rate of prevalence of contraceptive methods. However, little study has focuses on informed choice of family planning to increase the contraceptive prevalence rate.

Objective: Therefore, the purpose of the study is to conduct an analysis the dynamics of contraceptive use among women of Northest India.

Methodology: By using mixed method, the present study tries to focus on status of informed choice as a key way to improve the use of family planning methods particularly in Northeast India. The paper is based on III and IV round of National Famliy Health Survey.

Findings: Among the states of Northeast India, the highest discontinuation of family planning is found in Meghalaya during the period of 2005-06 to 2015-16. It is also found that the women of Northest India are less exposed to mass media. Result also showed that the lower prevalence of informed choice in all states of Notherst India. Secondly, informed choice is highly noticeable for IUD method while it is found to be low in case of female sterilization that has dominance in Northeast India.

Policy Implications: The study will give insight on informed choice of family planning so that women's decision-making power can be increased regarding switching of the contraceptive as per their need and thereby contraceptive prevalence rate can be increased.

Paper ID-192
Spatial variation and geographically weighted regression analysis of domestic violence in Northeast India
Sharatchandra Haobijam, Dr. Ksh Anand Singh, Dr. Kh Jitenkumar Singh and Dr H Nirendrakumar

Background: Domestic violence (DV) is now widely recognised as an important public health problem owing to its health consequences. Approximately 20% of married women in India between the ages of 15 and 49 have experienced domestic violence at some point lives. **Objective:** The present study attempted to investigate the spatial variation of different forms of domestic violence in Northeast India. **Data:** A sample of 9,582 ever-married women aged 15-49 from NFHS-5(2019-21) is used in the analysis.

Methods: Chi-square and binary logistic regression were employed. **Results:** The prevalence of domestic violence in this region is 31.3%. In Northeast India, Manipur recorded the highest experience of domestic violence, with 41.5%. The prevalence of domestic violence is highest in Hailakandi (64.7%) district in Assam and Bishnupur (59.9%) in Manipur. **Conclusion:** The study illustrates to understand how domestic violence varies across the district in the Northeast region. These results provide vital information to assess the situation, develop public health interventions, and sensitise the concerned agencies to implement violence-related laws against women.

Paper ID-198

Childhood Vaccinations in North-East India: Trend, Pattern, and Influencing Factors for Low Coverage

Mr. Soilalsiem Gangte & Dr. Avijit Mistri

India has experienced tremendous progress in childhood immunization, with around three-quarters of children through flagship programmes UIP, MI and IMI. But there is a wide variation among regions and states- western, northern, southern, eastern, and central Indian states reported 81.70%, 81.68%, 81.58%, 81.0% and 75.66%, respectively, in NFHS-5. Whereas eight Northeast (NE) states covered 68.4% with higher dropouts (25%) and non-vaccinations (7.0%). The present study investigates the level, trends, pattern, and vaccination dropout among children aged 12-23 months in NE and state-wise variation during NFHS-1 to 5. Finally, it examines the influencing factors for low coverage of basic vaccinations in the region in 2019-21.

The study consults published reports and unit-level data of NFHS-1 to 5. Thirteen predictors are identified and broadly classified into children, maternal, household, and socio-cultural factors. NE states are very diverse in terms of ethnopolitical and cultural identity. The Multinominal Logistic Regression model helps to predict the significant determinants for the outcome of childhood vaccination status- fully vaccinated, under-vaccinated and non-vaccinated, and controls the state-variant characteristics.

NE states substantially improved childhood immunization from 22.8% in 1992-93 to 68.4% in 2019-21; still, it is below the national average (77%). Sikkim has performed well throughout health surveys and covered over three-fourths of children in 2019-21. Nagaland's performance (58% of children) is a grave concern. Highly predictive determinants for childhood vaccinations include maternal characteristics- received ANC for pregnancy, place of delivery, education and media exposure.The state governments may adopt policy mechanisms to encourage pregnant women to enrol in ANC programmes and ensure institutional births to improve full immunization. The consciousness of vaccinations and their scheduled doses can be advocated through mass media. The significant social determinants, caste/tribe and religion, will require multifaced public healthcare structures and programmes to address successfully. A large section of the backward hilly tribes is needed special attention to improving the levels of childhood vaccinations in NE.

Paper ID-224

Issues of Maternal Health Care Services Among Tea Garden Women in Cachar District, Assam

Mrinali Narzari and Dr. Rajiya Shahani

Background: Health is a means and important indicator for human development in a country. Therefore, assuring a minimum health care is essential for development of any society. But, in most developing countries like India poor health status of population is a major issue creates challenges for development. The important reason for poor health status of population is maternal morbidity and mortality. The prevalence of high maternal morbidity and mortality indicates the insufficient and inadequate health system of a state. In India higher maternal mortality is a major public concern and among the states of India Assam has the highest maternal mortality which not only affects the health of mothers and their child but also prevents a country to achieved developmental goal. Thus, it is significant to study the issues of maternal health care services for improvement of maternal health and their well-being.

Objectives: To study the various issues of maternal health care services and availability of public health facilities.

Data and methods: This study is based on both primary and secondary data. The sources of secondary data are collected reviewing literatures and annual reports published by government and non-government agencies. The sources of primary data are collected using simple random sampling method. The required information collected through house-to-house visit using structured interview schedule among 80 women age group of 15-49 years in selected tea gardens of Cachar district, Assam.

Findings: The sociological study show the significant variations of availability and accessibility of health care systems and issues related to use of maternal health care services among women. Various socio-economic, demographic factors influence access of maternal care services among population in the study area.

Conclusion: For growing women health status and well-being of maternal health it is necessary to improve

the health care system and enhanced awareness about the health care facilities, governmental schemes regarding maternal health care and necessities of maternal health care is unavoidable for development of a nation.

Paper ID-225
Infant Mortality among theTea Garden Workers in Upper Assam: Insights from a field Survey
Kanchan Devi, Vandana Upadhyay and Arnob Paul

Infant mortality rate is an important indicator which not only reflects the health status of theinfant but also the well-being of a society as a whole. The North-Eastern state, of Assam, isone of the states having the highest number of maternal and infant deaths within the country.For the first time Infant Mortality in Assam registered a decline to 31.9 compared to thenational average of 35.2 per thousand live births. (NFHS-5). Though the overall rank of thestate in terms of infant mortality has improved (from the 34 th position to the 25th position), it isnot enough and is not evenly distributed across the communities within the State. Human rightsviolations are particularly prominent among the tea garden workers of Assam and are mostlyseen against the Adivasi children and woman, which is reflectedby high maternal and infantdeaths. The study aims to determine the factors responsible for infant mortality among the teagarden workers by using the primary datacollected from 300 women workers from acrossthetea gardens inSonitpur and Tinsukia districts of Upper Assam.The binary logistic regressionmethod is used for the analysis. It was observed that among the six probable factors,viz., educational qualifications of the mother, marriage age of the mother, daily working hours,daily wage as tea garden labour, total number of births and the source of drinking water; thefollowing three factors, namely the total number of births, age at marriage and the source ofdrinking water are found to be the significant determinants of infant mortality among the teagarden labourers of Assam.