44th Annual Conference
of the
INDIAN ASSOCIATION FOR THE STUDY OF POPULATION
Orgnanized Jointly with the

CENTRE OF EXCELLENCE ON PUBLIC HEALTH NUTRITION, DEPARTMENT OF HUMANITIES AND SOCIAL SCIENCES, NATIONAL INSTITUTE OF TECHNOLOGY ROURKELA, ODISHA

SOUVENIR AND ABSTRACTS

NOVEMBER 8-10, 2023

NATIONAL INSTITUTE OF TECHNOLOGY ROURKELA, ODISHA

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Message from the President, IASP

Warm greetings to all of you!

As President of the Indian Association for the Study of Population (IASP), it's a privilege to lead this esteemed organization with a rich history of advancing population and public health research in India. Let's reflect on our achievements and my vision for the future.

IASP has been a pioneer in promoting research and intellectual exchange in population dynamics for decades. Understanding India's diverse population is crucial, given its unique demographic complexities that affect public health, social policies, and economic growth. Our organization serves as a hub for knowledge dissemination, collaboration, and exchange among experts, researchers, policymakers, and practitioners in population and public health.

During my tenure, I aim to build on our legacy by introducing distinguished lecture series and revitalizing regional-level conferences. These initiatives will shed light on regional dynamics and provide actionable recommendations.

Our strength lies in member engagement. I encourage you to participate in our initiatives, contribute to "Demography India," and collaborate with fellow members to enhance the impact of our research and influence policies.

IASP is fortunate to have a vibrant community of young scholars and experienced experts in population, nutrition, and public health. Young researchers, your dedication and fresh perspectives are invaluable. We're committed to creating opportunities for your growth through workshops, mentorship programs, and networking events.

To our esteemed long-term members, your knowledge and experience are vital. Please continue to guide and inspire the next generation.

In the coming months, we will expand our membership, strengthen partnerships, and enhance the quality and reach of our publications. I'm eager to hear your thoughts and ideas as we embark on this exciting journey.

Thank you for your unwavering support. I look forward to your active participation in advancing the study of population and public health in India.

Warm regards,
Prof. Suresh Sharma
President, IASP

PROF USHA RAM,
GENERAL SECRETARY, 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 for policy advisory. Also, it conducts distinguished lectures on contemporary topics from global and national experts. The Association regularly publishes an Online Journal, Demography India. 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 in 2021, the first time being in 1989.

Tha Association has a long history of organizing annual conferences. Over the Yeats, these conferences have been organized in various parts of the country covering almost all states. The annual conference is a big event and is attended by more than 250 international and national population and health experts including academicians, researchers, government officials, program and policy makers/implementers, development partners, representatives of NGOs and research organizations and the young scholars from a whole range of social and health sciences.

As our mother planet embraced 8 billionth baby on November 15, 2022, we the demographers have an even bigger role in developing newer strategies to help governments in achieving accessible, affordable, equitable health care with quality content to elevate health and well-being of one and all. The IASP as a professional association take lead in initiating debates and discussions on these critical concerns in India, the country homes world's largest population. The 44th annual conference of the IASP is scheduled during November 8-10, 2023, at the Centre of Excellence on Public Health Nutrition, Department of Humanities and Social Sciences, National Institute of Technology Rourkela, Odisha. The Conference's theme is "1.4 Billion Aspirations, One Sustainable Future: Unfolding India's Path to Development". The conference will have plenary sessions in which experts will ponder upon key issues related to data gaps and methodological challenges and learning from the high impact interventions to improve maternal and child health given the fact that we are only 7-years away from achieving the SDG targets. The technical sessions will have in person presentations from nearly hundred researchers representing range of institutions and organizations. Additionally, there are two poster sessions in which nearly 50 young researchers will share their research. For the first time, the IASP is organizing a pre-conference capacity building workshop for the young researchers on understanding data from a gender lens. Prof. Sudesh Nangia, an internationally renowned demographer would deliver George Simmons memorial lecture. The conference will felicitate senior demographers for their outstanding contribution in the field and award young researchers and scientists of outstanding research/publications. The proceedings of the presentations from the conference would provide strategic guideline to the policy makers for future improvements in population health and well-being.

I congratulate all IASP members and the EC members for their commitment and cooperation, in organizing this conference under the leadership of Dr. Suresh Sharma, President IASP and the hard work they have put over the past few months to make this event happen. The IASP remains thankful for the continued financial and other support from United Nations Population Fund (UNFPA), International Institute for Population Sciences (IIPS), Population Council, PATH-USAID, making this Conference a grand success.

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

DR. JEETENDRA YADAV
TREASURER, IASP

MESSAGE

The Indian Association for the Study of Population (IASP) is an organization of the Population Scientists, Demographers, Social Scientists, and Public Health Experts. The organization regularly organises National and International conferences, workshops, meetings, and discussions on Population, Demography, Public health, and Epidemiology -related issues. It also organises distinguished lectures on contemporary topics from global and national experts. IASP publishes books, monographs, journals, newsletters, occasional papers, etc. Demography India is the online journal of IASP, which publishes research papers on population and health-related issues. IASP has organised two International Population Conferences, in 1989 and 2021, with the International Union for the Scientific Study of the Population (IUSSP).

IASP organises Conference on an Annual basis and also Regional Conference to give importance to the regionality of the area and promoting local demographers and giving them a platform to research on regional issues. The conferences are a platform for discussions and deliberations that would lead to policy and programme recommendations for India and its States. The 44th Annual Conference of the India Association for the Study of Population will be organized at the National Institute of Technology Rourkela, Odisha during November 8-10, 2023. The theme of the Conference's is "1.4 Billion Aspirations, One Sustainable Future: Unfolding India's Path to Development". The conference will have plenary sessions on Nutrition in context to SDGs and Maternal Newborn, Child Health. Prof. Sudesh Nangia, Former Professor, CSRD, JNU would deliver George Simmons memorial lecture on "Gender Equality and Women's Empowerment in India: Status and Challenges". The conference will felicitate senior demographers for their outstanding contribution in the field and award young researchers and scientists of outstanding research/publications.

I wish to take this chance to express my appreciation 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, Honourable Director, NIT Rourkela Prof. Umamaheshwar Rao, and Prof. Narayan Sethi, Head, Department of Humanities and Social Sciences, NIT Rourkela, for accepting our invitation to jointly host the 44th Annual Conference of the Indian Association for the Study of Population. I would also like to thank Prof. Jalandhar Pradhan, Convenor, Department of Humanities and Social Sciences, NIT Rourkela along with the team members for the hard work they have put to make this event happen. Special thanks to IASP President Dr. Suresh Sharma and General Secretary Prof. Usha Ram for their efforts in organising this conference. I express my sincere gratitude to United Nations Population Fund (UNFPA), Centre for Demography of Gender (IIPS), Population Council, United Nations International Children's Emergency Fund (UNICEF), United States Agency for International Development (USAID) and PATH, for providing financial support to the 44th Annual Conference of the India Association for the Study of Population.

I send my warmest greetings to all of the conference attendees, and I hope you all have a wonderful time in Rourkela!

Dr. Jeetendra Yadav, Ph. D
Technical Officer-C
ICMR-National Institute of Medical Statistics
Ministry of Health & Family Welfare, Govt of India

Prof. K. Umamaheshwar Rao
Director

प्रो. के. उमामहेश्वर राव
निदेशक

MESSAGE

I am elated to note that the Center of Excellence on Public Health Nutrition (CoE-PHN), Department of Humanities and Social Sciences, NIT Rourkela, is organising the **"44th Annual Conference of IASP on 1.4 Billion Aspirations, One Sustainable Future: Unfolding India's Path to Development"** from 8th to 10th November, 2023 in collaboration with Indian Association for the Study of Population (IASP). The conference aims to provide a common forum for academicians, practitioners, social scientists and researchers to exchange and share their experiences and research outcomes on varied aspects of population and human development in the context of Sustainable Development Goals. Additionally, themes of the conference cover national, regional, and local issues on human development that are of wider policy significance and interest to national and regional entities.

I earnestly hope the event will be a blend of research-oriented and evidence-based discussions leading to insightful recommendations for effectively achieving the SDGs in India and mark a place for ourselves in the global scenario.

I congratulate the CoE on Public Health Nutrition, Department of Humanities and Social Sciences for taking up the joint venture with IASP and organising this conference and appreciate the hard work put in by all faculty members, students, and staff of the department as well as others involved in organising this event.

On behalf of NIT Rourkela family, I extend a very warm welcome to all the dignitaries, distinguished guests and participants, and wish the conference a great success.

Prof. K. Umamaheshwar Rao
Director, NIT Rourkela

From Conveners' Pen

The Centre of Excellence (CoE) on Public Health Nutrition (PHN), Department of Humanities and Social Sciences, National Institute of Technology Rourkela takes a great privilege to organize the "44th Annual Conference of IASP on 1.4 Billion Aspirations, One Sustainable Future: Unfolding India's Path to Development" to be held from 8th to 10th November, 2023 in collaboration with the Indian Association for the Study of Population (IASP).

The conference intends to enhance knowledge management in the various facets of human development in the context of rising population and achievement of Sustainable Development Goals. It also provides a premier interdisciplinary platform that facilitates sharing and discussing recent innovations, trends, and concerns along with practical challenges encountered and solutions adopted to facilitate the fulfillment of SDGs. The valued guests and dignitaries from across the country, attending this event will hopefully enjoy the beautiful campus of this esteemed institute of premier learning. We expect that the delegates will take back the results of creative exchange and the knowledge gained through the conference.

We express our profound gratitude to the Director, NIT Rourkela for his encouragement and support to organise this event. We sincerely acknowledge the efforts and hard work of all the team members of the Center of Excellence on PHN, as without their full-hearted support this event was not possible. We would like to thank IASP for giving us the opportunity to organise this grand event. We also acknowledge the support of senior officials, faculty members and all the students to make this conference a success. Last but most importantly, we express our humble and most sincere thanks to UNICEF, UNFPA, PATH, USAID, Population Council, and IIPS, Mumbai for providing necessary financial support for organising this event of national importance.

Dr. Jalandhar Pradhan
Professor
Department of Humanities and Social Sciences
National Institute of Technology Rourkela

Mr. Sourav Bhattacharjee
Nutrition Specialist
UNICEF, Bhubaneswar

About Rourkela

Rourkela is a city located at 84.54E longitude and 22.12N latitude in Sundargarh district of Odisha at an elevation of about 219 meters above mean sea level. The area of Rourkela is 200 square kilometres approximately. The city is surrounded by a range of hills and encircled by Koel and Sankha rivers which meet at Vedvyas, Rourkela and flow as a single river called Brahmani. One of the largest steel plants of the Steel Authority of India Limited (SAIL) is situated here named Rourkela Steel Plant. Therefore, the city is also popularly known as 'Ispat Nagar'. It also has one of the National Institutes of Technology (NIT Rourkela) of the country. The Steel Township and Fertilizer Township are under the Steel Plant Administration while the other sections of the city are under the Rourkela Municipal Corporation. Since then, the city has kept with modernization and grown to become Odisha's one of the most well planned and picturesque city. *Rourkela* has joined the list of world's biggest hockey stadiums, as the Guinness Book of World Records has officially recognized the Birsa Munda Hockey Stadium as the world's largest fully seated hockey stadium. As a whole Rourkela is perfect confluence of a city living and a nature retreat. The city has been selected as smart city in the third phase of smart city list on 20 September 2016. According to the census report of 2011 the population of Rourkela Industrial Township is 210,412 and Rourkela Town is 309,689 and the urban metropolitan area is 552,970.

Weather

Rourkela city has a tropical climate. The three main seasons, summer, monsoon, and winter respectively, dominate the city of Rourkela. The summer season starts from mid-March to June and touches temperature ranging from 21°C to 49°C. Monsoons arrive in the month of June heralded by thunderstorms and receives high rainfall. Average annual rainfall ranges between 160 and 200 cm. The winter season prevails from the month of November till the month of February. The city observes pleasant sunny days and enjoyable cool nights with the temperature ranging from 4°C to 25°C. Thirty six percent of the geographical area of the district has semi-evergreen or tropical dry deciduous forest.

Transport

If you are touring the city, you can hire auto/cab or private car that is available in variety, ranging from luxurious cars to average ones. You can choose cab as per your preference, comfort and luxury. One can take the services of auto/ cabs for a day or days, for sightseeing purposes and excursions too. Ola Taxis are easily available in the city.

The city dwellers usually rely on MO-Bus, and autos to move around the city. Auto, being the cheapest mode to travel, is used by people to a great extent. If you are not interested in taking auto, you can opt for Mo-Bus, which are easily available throughout the city. These autos run on sharing basis and move

from one point to another for getting more and more passengers. To sum up, there is no need to be bothered about transportation, since Rourkela has sufficient means of transport to assure you a relaxing trip.

Connectivity

By Air
The nearest airport in Rourkela is called the Veer Surendra Sai Airport (Jharsuguda Airport) which is situated about 131 kilometres away from Rourkela. It is well-connected by air to all major cities in India including Delhi, Mumbai, and Kolkata. Some of the popular airlines that have daily flights to and from Jharsuguda are Air India and Spice Jet. Once you reach at the airport, you can hire cabs or book pre-paid taxis that are easily available for travelling between the airport and the city.

By Bus
There is a very well-established bus service network to Rourkela, linking it to several cities like Sambalpur, Kiri Buru, Manoharpur and Birmitrapur, among others. There are a number of options when it comes to travelling by bus. These include state-run transport (MO Bus) with air-conditioned coaches. One can get easy access of the bus timings as well as routes for MO Bus through Chalo App.

By Train
Rourkela lies on a vast network of rail that connects it to major cities in India such as Ranchi, Bhubaneswar, Cuttack, Kolkata, Vishakhapatnam, Patna, and Jamshedpur, Mumbai. Some of the popular trains that run daily are Vande Bharat, Rajya Rani Express, Dhanbad Express, Santragachi Humsafar Express, Pune Humsafar Express, Gitanjali Express, and Intercity Express. Once you reach the station, you can hire a taxi or an auto-rickshaw depending on where do you want to get down in the city. The fare will depend on the number of kilometres covered.

By Road/ Self Drive
Rourkela is connected to Bhubaneswar, by National Highway 143 (NH 143). The drive is about 8 hours long and covers roughly 315.9 kilometres from both the cities. Many tourists visiting Rourkela prefer to drive on their own. If you do not wish to use your personal vehicle, there are several tour operators that provide vehicles on hire.

Airport	Rail Distance from Rourkela / Journey time	Road Distance from Rourkela / Journey time
Jharsuguda	135 Km, 1 hr 30 mins	135 Km, 2hrs 30 mins
Kolkata	413 Km, 6 hrs	525 Km, 9hrs

Airport	Rail Distance from Rourkela / Journey time	Road Distance from Rourkela / Journey time
Bhubaneswar	462 Km, 7 hrs	320 Km, 5hrs
Ranchi	166 Km, 3 hrs 30 minutes	222 Km, 4hrs
Raipur	417 Km, 6 hrs 30 mins	448 Km, 6hrs 30 mins

Prime Tourist Destinations

Vedavyas: Vedavyas is a very famous spot in Rourkela for it is from here where Maharishi Vyas wrote "Mahabharata". It is often subtly attractive for it is located at influence of the rivers Shankha, Koel and Saraswati. Apart from its natural beauty this place also offers other attraction like vedic ashram.

Hanuman Vatika: The heart of the town has a 75-feet tall standing statue of Hanuman designed by Sri Laxmana Swami which is one of the appreciated attractions of Rourkela. The vicinity of this temple also houses other temples like Santoshi Maa Mandira, Bruhat Sivalinga Mandira and Ram Daravar. This temple is surrounded by a beautiful garden.

Vaishno Devi Temple: The presiding deities of Maa Vaishno Devi temple Goddess Kali, Goddess Lakshami and Goddess Saraswati. This temple which is situated on top of a hill with a scenic beauty of the city around gives the place a heavenly feeling. It's the replica of Vaisnodevi temple, Jammu. One has to climb nearly 300 stairs to reach at the temple. One can get mountain view of Rourkela from here.

Indira Gandhi Park: Indira Gandhi Park is situated on the main ring road in Sector 4. It is spread on a total area of about 42 acres. The big park is well maintained. Besides, garden, large space for picnic etc., there is mini zoo, boating and a toy train facility. These facilities are enjoyed by children's as well as adults. Train platform is also nicely decorated to suit the park theme.

Khandadhar Waterfall: Amidst thick jungles, Khandadhar is a glittering waterfall created by perennial rivulet called Korapani Nala within a few kms. Of its origin. 244 meters in height it is said to be the highest waterfall in Odisha. This beautiful waterfall is situated at a distance of about 114 kms from Rourkela.

Hockey Stadium: The Birsa Munda International Hockey Stadium is situated at Rourkela, India. The stadium has been named after the tribal leader, Birsa Munda, who was a famous freedom fighter. The Stadium was built exclusively to host the 2023 Men's FIH Hockey World Cup, which was held in two cities in the state of Odisha, Bhubaneswar, and Rourkela.

About NIT Rourkela

NIT Rourkela is an institution of national importance funded by Ministry of Human Resource Development, Government of India. The Institute was established as Regional Engineering College (REC) on August 15, 1961. It is one of the premier national level institutions for technical education in the country. The main objective of the institute is to produce quality engineers and researchers in various branches of Engineering and Sciences. NIT Rourkela was ranked 601-800 in the world by the Times Higher Education World University Rankings (Engineering) of 2024 and 59th in Southern Asia University Ranking. In India, it is ranked 16th in Engineering Category and 37th in the overall category by the National Institutional Ranking Framework (NIRF) in 2023. The campus of the institute spread across 262 hectares, in the heart of Rourkela Steel City, hosts 20 Departments awarding graduate and post graduate degrees including Ph.D. in Engineering, Science, Planning and Architecture, Management, Humanities and Social Sciences.

About the Department of Humanities and Social Sciences

The Department of Humanities and Social Sciences has been functioning as a full-fledged department catering to both undergraduate and postgraduate students. The faculty has wide experience in teaching and research and in communicating with students of diverse backgrounds. The department offers a full-time PhD programme in the disciplines of English, Sociology, Psychology, Economics, Anthropology, and Sanskrit. It also offers a post graduate programme in Development Studies in addition to compulsory HSS courses for undergraduate students. Additionally, in collaboration with UNICEF, the Department of Humanities and Social Sciences, established the Centre of Excellence on Public Health Nutrition. The Centre serves as a platform for collaborative research and knowledge sharing activities among the different research groups, planner and policy makers in the areas of Public Health Nutrition and Food Security, especially in Odisha.

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ORAL PRESENTATION ABSTRACT

Grandmother's Experience of Caregiving to Grandchildren Staying at Their Children's Place: A Study on Urban Indian Families

Dr. Angan Sengupta and Dr. Priya Gupta

Young parents from nuclear families after moving to different cities seek help from their parents to take care of their young children. This study attempts to understand the lived experience of grandmothers and their perspectives on their roles and responsibilities while their taking care of grandchildren aged 0-5 years after they temporarily relocated to a different city with their children. A purposive sample of 60 such grandmothers were interviewed using a semi-structured questionnaire. The content analysis of qualitative data was conducted. To develop few codes etic support was required for example the code generation has etic origin. A total of 27 axial codes were arrived at after open coding initial transcripts, that led to emergence of four major themes; (1) complaints against physical and mental health problems due to grandchild care, (2) perceived lack of family bond between children and grandkids (3) grandmothers takes care of food, nutrition, health and hygiene of the grandchildren (4) grandmothers help children retain job and avoid financial difficulties by providing caregiving to grandchildren. This study could identify a number of positive and negative aspects of grandmothers' lives while they relocate to co-reside with their children's family to take care of their young grandchildren. There has been both physical and psychological adversities. Main causes of dissatisfactions are high caregiving burden, lack of support, lack of recognition of grandmothers' suggestions and efforts. Yet, they see themselves playing a major role in inculcating moral, cultural values and socially acceptable behavior which can positively influence the grandkids' attitude towards life and relationships. These positive aspects provided greater meaning to the experience of grandchild caregiving of course with its own disappointments that were present. The importance of joint family against a nuclear family structure resonated loud and clear.

Flexible Statistical Modeling of Undernutrition Among Under-Five Children: An Evidence From NFHS-5

Dr. Shambhavi Mishra

Childhood undernutrition has an irreversible impact on the physical as well as mental development of the child. Nutrition-related factors were responsible for about 35% of child deaths and 11% of the total global disease burden. This health condition continues to be a major public health issue across the globe. Three standard indices based on anthropometric measurements viz. weight and height, that describe nutritional status of children are: height-for-age (stunting), weight-for-age (underweight) and weight-for-height (wasting). Z-scores have been computed on the basis of appropriate anthropometric indicators (weight & height) relative to the WHO International reference population for the particular age. This paper utilizes unit-level data on under-five children of Uttar Pradesh from the NFHS-5, 2019-2021 to find out factors which exert a differential impact on the conditional distribution of the outcome variable. A class of models that allow flexible functional dependence of an outcome variable on covariates by using nonparametric regression have been applied to determine possible factors causing undernutrition. This study also fits a Bayesian additive quantile regression model for the provision of a complete picture of the relationship between the outcome variable (stunting) and the predictor variables on different desired quantiles of the response distribution. Different types of quantile regression models were fitted and compared according to each Deviance Information Criteria (DIC) for determination of the best model among them. Maternal characteristics like nutritional status, educational status showed significant impact of child's nutritional status, consistent with the findings of other studies. Also, it could be seen that maximum number of covariates were found significant for severe undernutrition, indicating that differential effect of predictors on the conditional distribution of the outcome variables.

Level, Trend and Predictors of Self-Reported Tuberculosis in India: Evidences from Last Three Rounds of NFHS Data

Dr. Jai Kishun Associate Professor and Dr. Uttam Singh

Introduction: This study investigates the dynamic landscape of self-reported tuberculosis (TB) in India, utilizing data from the National Family Health Surveys (NFHS) conducted across three successive periods: NFHS-3, NFHS-4, and NFHS-5. By assessing the levels, trends, and predictors of self-reported TB, this research sheds light on the evolving patterns of TB perception and reporting within the Indian population. Objectives: The primary objectives of this study are to assess the levels, trends, and predictors of self-reported tuberculosis in India. Methods: The study employs data from the last three rounds of NFHS (NFHS-3, NFHS-4, and NFHS-5). Utilizing descriptive analysis and logistic regression, the research examines the predictors of self-reported TB in India. Results: Based on NFHS-5 data, the estimated prevalence of medically treated tuberculosis is 222 individuals per 100,000, with higher rates among men (283 per 100,000) compared to women (162 per 100,000). Similarly, NFHS-4 reveals prevalence rates of 305 per 100,000, higher among men (389 per 100,000) than women (220 per 100,000). Decreasing trends are observed over time, with the prevalence of medically treated TB declining from 305 to 222 per 100,000 between 2015-16 and 2019-21. Age and residence group analysis reveals decreasing prevalence in all segments. Similarly, NFHS-3 to NFHS-4 data indicates a decline in prevalence across age and residence groups. Conclusion: This study underscores the importance of self-reported TB data within TB surveillance efforts. Despite limitations, it provides valuable insights into TB perception and reporting dynamics. Through a thorough analysis of NFHS-3, NFHS-4, and NFHS-5, the research contributes to a holistic understanding of the multifaceted aspects influencing TB reporting in India. The findings offer evidence-based insights into TB's levels, trends, and predictors, serving as actionable information for public health initiatives and policymakers to enhance TB control strategies and healthcare access nationwide.

Dietary Diversity and Undernutrition in Children Aged 6-13 Months in India: A Multilevel Analysis

Mr. Bikash Khura and Parimala Mohanty

Background: Nutrition is a crucial component of Sustainable Development Goal to eradicate hunger by 2030. Dietary diversity is an important measure of high-quality diets and a good predictor of children's nutritional status. It is known from the literature that undernutrition causes stunting, being underweight, and wasting. In low-and-middle-income like India children don't eat enough variety of food resulting in a compromise in the health status of children. However, the evidence of critical function in children's health is inconclusive. Objectives: This study aims to examine the association between dietary diversity and undernutrition in children aged 6-13 Months in India. Methods: Univariate analysis, Cross-tabulations, and, chi-square were performed. The association was determined using multilevel binary logistic regression and multilevel regression, and the results were provided as crude odds ratios (cOR) and adjusted odds ratios (aOR) with 95% confidence intervals at the significance level as $p<0.05$. Results: The overall prevalence of stunting (34.43%), wasting (20.94%), underweight (29.12%), and MDD was 23.03%. The prevalence of stunting, wasting, and being underweight is higher among males compared with female children. Similarly, the MDD of male children is lower compared to male children. In comparison to children with inadequate minimum dietary diversity, those with adequate minimum dietary diversity had a 1.03 times lower risk of stunting (aOR = 1.04, 95% CI = 0.91, 1.17). The incidence of childhood wasting was significantly reduced by 7% among children who had an appropriate minimum dietary diversity (aOR = 0.93, 95% CI = 0.80, 1.10). Comparing children with appropriate minimum dietary diversity to those with poor minimum dietary diversity, there was a 2% reduction in the odds of being underweight (aOR = 0.98, 95% CI = 0.85, 1.11). Conclusion: This study emphasizes the important link between a limited variety of diets and stunting, wasting, and underweight in 6- to 23-month-old children in India.

Envisioning Disease Prevention: Machine Learning-Driven Predictive Analytics in Modern Healthcare

Mr. Prasanta Panda

In the dynamic realm of modern healthcare, the integration of machine learning into predictive analytics has emerged as a formidable asset for pre-emptive disease avoidance. This transformative shift accentuates the pivotal role of data-driven methodologies in not only detecting potential health ailments but also in curbing their progression into chronic afflictions. Through the adept utilization of advanced machine learning algorithms and the mining of extensive historical health data, predictive analytics powered by machine learning stands poised to redefine the healthcare landscape. This paradigm shift underscores the significance of data-driven approaches in identifying and addressing health risks before they escalate into chronic conditions. By harnessing advanced data analysis techniques and leveraging historical health records, predictive analytics holds the potential to revolutionize healthcare practices. This exposition delves into the fusion of machine learning and predictive analytics as a proactive mechanism in preventing diseases, underscoring its capacity to revolutionize the approach and management of individual health trajectories. In this paper, using Machine Learning Algorithm how a disease can be predicted in advance is proposed. Different attributes have been considered for Model building and prediction. Using Exploratory Data Analysis (EDA) insight about the data has also been visualized.

The Interplay between Population Heterogeneity and Data Quality: Implications for Assessing Fertility and Family Planning Measures in Diverse Population of India

Miss. Jagriti Gupta and Prof. Chander Shekhar

The increasing availability and accessibility of large-scale data worldwide raise concerns about the reliability of data quality. This study focuses on assessing the quality of data related to fertility measures in the National Family Health Survey (NFHS), also known as the DHS of India. Given the impact of population growth and heterogeneity on survey samples, it is crucial to investigate how these factors affect data quality. The study utilizes data from all five rounds of the NFHS, with the sample size ranging from 89,777 eligible women in NFHS I (1992-93) to 724,115 eligible women in NFHS V (2020-21). The analysis aims to identify age displacement, birth displacement, age heaping using Myers index and age displacement index. Additionally, the study examines disparities in data quality based on longer and shorter versions of questionnaires and rural-urban differentials. Key indicators such as the number of children ever born, number of living children, knowledge and use of contraceptives, and antenatal care visits are analyzed. Birth history and calendar data are utilized to assess data quality regarding births and contraception, specifically by examining the ratio of children aged 5 and 6 and the ratio of months or years of contraceptive use relative to preceding and following periods. Furthermore, the study estimates the F-ratio to measure the influence of different teams and interviewers. Fixed-effect binary logistic regression models are employed to assess the impact of survey implementation design on fertility and family planning outcomes. The findings indicate a reduction in age heaping and Myers Index over time, while age displacement is observed among certain age groups. Discrepancies in reporting the number of children ever born and living are evident between data sets and educational groups, with greater flaws found among uneducated respondents. The regression analysis reveals significant effects of skipping specific questions based on long and short questionnaire on antenatal care visits and knowledge of contraceptive use. Overall, this study emphasizes the potential misinterpretation of fertility and family planning indicators due to the interplay of population heterogeneity and data quality issues. Addressing these concerns is essential for obtaining reliable quality indicators related to fertility and family planning events.

Social Network and Life-course Approach of Psychological Health among Old Women in Bihar

Dr. Dolly Kumari

Geriatric depression, quality of life, and self-reported health are common measures of psychological health. Age-related psychological health is influenced by a number of variables, including socio-demographics, social networks, and life experiences. This study aims to examine the impact of Social Networks and Life-course Approach on Psychological Health among Old Women in rural Bihar. A cross-sectional study used primary data from eight randomly selected villages from two randomly selected districts (Buxar and Navada). A total of 521 individual women aged 60 years and above were interviewed. A semi-structured questionnaire was used for data collection and data were collected on socio-demographics, health, social networks, and questions related to adverse life events and experiences in pivotal and vulnerable life stages. To measure the Psychological Health Geriatric Depression scale and Quality of Life has been used. Socio-demographics along with social networks and life-course approach variable has been used as independent variable. Descriptive statistics along with the chi-square test and multinomial regression are used for analysis. The findings indicate a significant absence of close confident social relations among elderly women in Bihar. The results clearly indicate that having closer confident social relations is associated with a higher likelihood of having a fair quality of life. Old women without health issues during childhood have a lower percentage of good quality of life (16.7%) and a higher percentage of mild and severe depression (50%). The financial situation during childhood also plays a role, with old women in a favorable financial situation having higher percentages of good quality of life (29.4%). Higher social networks with friends signify a lower level of depression. However, the risk of depression is lower among those who have a medium-level social network with their relatives. In conclusion, these findings illuminate the intricate interplay between early life experiences, social connectedness, and mental well-being in later life stages.

Regional Variations and Correlates of Non-Communicable Diseases in India: Evidence from NSS (75th Round) Data

Miss. Anaswara B G

Non-communicable diseases (NCDs) are a significant global health challenge, responsible for a substantial portion of morbidity and mortality worldwide. According to the World Health Organization (WHO), NCDs accounted for approximately 71 per cent of all global deaths in 2016. India is experiencing a rapid health transition with a rising burden of Non-Communicable Diseases (NCD) surpassing the burden of communicable diseases. Every region in India is different in its cultural and lifestyle practices, economic and social development; socio-demographic profile; and disease epidemiology. Furthermore, NCDs and their associated risk factors are emerging as a major concern across all regions irrespective of their economic and health systems profile. There is a need to study the regional-level NCD risk factor profile in such a large and diverse country. Such assessments are essential for planning and optimizing NCD prevention and control interventional strategies. Keeping this in mind, this study describes regional differences and determinants of key noncommunicable disease (NCD) risk factors among Indians using data from the National Sample Survey (NSS) 75th round (2018) on Morbidity and Healthcare. Both univariate and multivariate analyses were used in this study. The presence of major NCDs was considered as the outcome variable. The survey collected comprehensive information on household characteristics (household consumption expenditure, source of energy for cooking, sanitation facility etc.), and individual characteristics (age, sex, marital status, educational attainment etc.). To arrive at the regional estimates, the country was divided into six regions (south, north, central, west, east and northeast) based on the distribution of a national sample. The results are presented as proportion with 95% confidence intervals (CI). Univariable and multivariable logistic regression analyses were performed to identify NCD risk factor determinants significant in the regions. A p-value <0.05 was considered for statistical significance. Kaplan Meier survival curves and Cox proportional hazards model were used to identify the factors affecting NCDs. The results showed that

the probability of survival decreased with age, varying by NCD category. The median age at onset of Asthma was comparatively lower among the study population. Significant associations were found between background characteristics and NCD occurrence. For instance, diabetes risk was higher among urban residents, highly educated individuals, Muslims, those belonging to SC social categories, higher income groups, employed, and those in the southern region. Similar associations were observed for hypertension, heart disease, and asthma. The study concluded that socioeconomically disadvantaged groups are at increased risk of NCDs.

Increasing Institutional Birth: The tale of India's Cash Transfer Scheme Janani Suraksha Yojana

Miss. Priyanka Yadav

Introduction: Improving maternal and child health has been accorded priority in global, national and local development agenda. India has made tangible progress in reducing maternal and neonatal mortality. The maternal mortality ratio (MMR) has declined from 398 (per 100 000 live births) in 1997-98 to 97 (per 100 000 live births) in 2018-20. Place of delivery is one of the most important phases of the utilization of maternal health care services (antenatal care, delivery care and postnatal care) which directly says that institutional i.e. public or private delivery decreases the maternal mortality in one hand and another hand it secures the newborn babies as well as secure from the different diseases as well as it decreases the neonatal mortality. Data and Methods: The entire study based on secondary data which was collected from the National Family Health Survey (NFHS)-5 conducted in 2019-21. Binary (0, 1) logistic regression has been performed for the proper depiction of the results. Results: The results show that there were a number of determining factors of place of delivery in India and the result of binary logistic regression shows that there was a huge difference in the likelihood of deliver at institution among the ever-married women i.e. middle aged (25-34 years). Higher educated, Hindu and women from richest wealth quintile were more likely to deliver at institution compared to their counterparts. The women who enjoy the higher autonomy were more likely to deliver at institution than the women who have low or partial autonomy in India. Discussion & Conclusion: Significant findings from this study have impact on policy for lowering Indian women's resistance to giving birth in a hospital, which will lower maternal and infant mortality in India.

UNDERSTANDING THE INCIDENCE OF PREGNANCY LOSS IN INDIA: A REGIONAL PERSPECTIVES

Dr. A. K. Ravishankar and Narmadha

This study investigates the factors associated with incidence of pregnancy loss (miscarriage, stillbirths and abortion) in Indian regions. The study analyzed 29702 respondents' pregnancy loss in the fifth rounds of National Family Health Survey (2019-21). A higher proportion of pregnancy loss was noticed, particularly stillbirth (30.5percent), miscarriages (26.5percent) and abortion (21.1percent) in Central region of India than the rest of Indian regions. States in the Western region of India recorded the lowest incidence of pregnancy loss (7.8percent), invariably in miscarriage (7.9percent), stillbirth (5.9percent) and abortion (8.1percent). Among rural, a highest proportion of pregnancy loss was witnessed in Eastern region (84.6percent) and lowest proportion registered in Western region (60.7percent). A significant proportion of young women (15-24) reported the pregnancy loss irrespective of all regions in India, however Eastern region recorded the highest (35.9percent) and North-East recorded the lowest proportion (21.4percent). With respect to wealth index, a quite higher proportion of Eastern region (64.7percent) and North-eastern region (62.9percent) women reported the pregnancy loss than the counterparts. It is concluded that there is a need of regional-specific, comprehensive and quality maternal healthcare programs for improving livebirth among Indian women.

Unveiling Anemia's Gender Divide: A Comprehensive Gender Analysis Approach for Deeper Insight.

Dr. Krishnendhu C and Dr Rakhal Gaitonde

Anaemia profoundly impacts South Asian populations, affecting about 2.36 billion individuals, predominantly women and children, with India bearing the heaviest global burden. Despite World Health Assembly targets and efforts to reduce anaemia, progress remains inadequate across South Asian nations. Disturbing trends in India's anaemia prevalence are evident in National Family Health Survey data spanning 2015-16 to 2019-21, revealing rises in children and women of reproductive age. Even with government initiatives like Anaemia Mukth Bharath, anaemia remains concerning, even in advanced areas like Kerala. Addressing this, the study proposes an intersectional gender analysis to fathom the complex social dynamics underpinning anaemia persistence, encompassing gender disparities, societal roles, and healthcare access. The research aims to scrutinize anaemia trends through a gender and intersectional lens from 2005 to 2019 (NFHS 3 to NFHS 5), probing correlations with socio-economic/demographic factors and advancing gender-centric analysis. Employing a gender analysis methodology, the study employs an intersectional framework to delve into diverse gender dimensions, focusing on sex-related differences and intersectional investigations for deeper gender-infused anaemia comprehension. The initial phase involves graphing anaemia trends across intersections, followed by regression analysis within each group, with anaemia as the dependent variable, uncovering links with socio-economic and demographic aspects. Notably, anaemia prevalence has risen in NFHS 5 compared to NFHS 4 across various age and gender cohorts. Non-pregnant women aged 15-49 saw rates increase from 34.7% to 36.5%, and anaemia among pregnant women of the same age group rose from 22.6% to 31.4%. Similarly, anaemia among men aged 15-49 increased from 11.8% to 17.8%. Intriguingly, anaemia reduced among young women aged 15-19 (37.8% to 32.5%), contrasting with young men in that bracket, whose anaemia surged from 14.3% to 27.4% in NFHS 5. The study concludes that anaemia escalation is observed in both men and women between NFHS 4 and 5.

The role of frontline workers in the contraceptive use dynamics in Bihar and Uttar Pradesh: Findings from longitudinal survey

Mr. Abhishek Kumar, A J Francis Zavier, Arupendra Mozumdar, Sana Ashraf and Rajib Acharya

Frontline health workers (FLWs) are effective drivers in improving family planning indicators, including maternal and child health. However, the existing studies established the relationship either using the aggregate level data (in large-scale surveys FLWs outreach for family planning is asked to non-user women) or using the cross-sectional data. The present study establishes the causal relationship between FLWs outreach and contraceptive use dynamics adoption, continuation, and discontinuation in Bihar and Uttar Pradesh. The study analyzed longitudinal data collected in two rounds, in 2021-22 and 2022-23, from 1,351 and 2,041 married women aged 15-49 in Bihar and Uttar Pradesh, respectively. The outcome variable was whether women continued to use contraception from round-1 or became new users at round-2 among women who were non-sterilized and fecund at round-1. The main explanatory variables used were 1) at the individual level, ASHA's discussion with women for family planning, and 2) at the community level, whether women staying in PSUs where ASHAs promoted for both short and long-acting contraceptive methods. Both descriptive and multivariate analyses were used in the analysis. Results showed that 11-16% of the women either continued their contraceptive use from round-1 or started using a modern contraceptive method at round-2 in both states. While 43-53% of women in both states reported that FLWs interacted during last 12 months at both rounds, just 7-11% of women reported that FLWs discussed family planning methods with them. However, if women who discussed FP with FLWs at both times or met at round-2 were more likely to use contraception. Moreover, in Uttar Pradesh, women residing in PSUs where FLWs are promoted for both short and long-acting contraceptive methods, contraceptive use is higher (odds ratio 1.93, $p <= 0.050$). The

importance of FLWs visits and most importantly discussion regarding FP is crucial in contraceptive adoption use and continuation.

Determinants and dynamics of rural-urban dichotomy of multidimensional poverty in Odisha

Mr. Biswaranjan Baraj, Susmit Biswas, Karan Mehta and Mehak Sood

Multi-dimensional poverty assessment entails a comprehensive evaluation of poverty through the lens of multiple deprivation dimensions. Following Alkire-Foster (AF), 2011 methodology based on three equally weighted dimensions Health, Education, and Standard of Living, embracing twelve indicators, the percentage of multi-dimensionally poor people has been calculated both for urban and rural areas in Odisha using two consecutive National Family Health Survey 2015-16 and 2019-21 data. As per multi-dimensional poverty index (MPI), 2023 released by Niti Aayog, percentage of multi-dimensional poor in Odisha has reduced from 29.34% in 2015-16 to 15.68% in 2019-2021. This reduction has been registered both in rural (from 32.64% to 17.72%) and urban areas (from 12.32% to 5.42%) of Odisha during the same period. The rural-urban divide in terms of percentage of multi-dimensional poor has narrowed down recently, however the rural and urban dichotomy of multi-dimensional poverty still exists. The paper has tried to understand the dynamics of multidimensional poverty in rural and urban areas separately by conducting different sub-group level analysis such as caste and religion. Then the paper tries to examine how the factors such as household size, caste, occupation, dependency ratio, years of schooling, occupation and gender of the household's head determine the level of multidimensional poverty in 2015-16 to 2019-2021 using regression analysis. The analysis attempts to create models to explore how these factors play a role in determining multi-dimensional poverty and how those factors can be influenced to overcome the same with time. The conclusions derived from this research furnish valuable policy insights, enhancing the precision and contextuality of interventions in both urban and rural domains.

Treatment Gap among Older Adults Suffering from Non-Communicable Diseases in India
Mr. Jitender Prasad

Objective: The aim of this study is to explore the reasons behind the treatment gap for NCDs among older adults in India. Data and Methods: LASI wave-1 were used with a sample size of 1,172 male and 1,426 female older adults suffering from non-communicable disease and reason for not seeking visit to healthcare facilities. Exploratory factors were employed to extract the prevalence of NCDs and reasons for not seeking healthcare visits for the same. Results: Nearly 21% of Indian older adults reported reasons for not visiting healthcare facilities despite having NCDs. Among them, nearly 7.30% do not have enough economic support for the treatment of NCDs and 1.45% reported that there was no healthcare facility available nearby, however, 4.45% believe that their work is more important than the treatment of the NCDs. Conclusion: Having a healthcare facility nearby will reduce the transportation cost which might affect the treatment-seeking behavior of the individuals.

Unforsaken Bonds: Understanding Why Older Parents of Migrants Are Left Behind

Mr. Manoj Dakua

The 2030 Agenda for Sustainable Development outlines a worldwide approach to attain sustainable development in a just manner, with the goal of safeguarding the human rights of all individuals. This study employs Pierre Bourdieu's theory of cultural capital, coupled with case study and key informant interviews (KII), to uncover the underlying factors contributing to the phenomenon of older parents being left behind by their migrating children in rural areas. Through this research, we aim to delve into the intricate reasons behind this circumstance, highlighting the role of cultural capital in shaping the experiences and decisions of these left-behind parents. We seek to illuminate the complex interplay of economic, social, and cultural dynamics that drive this phenomenon within rural communities. The

family's low disposable income is the primary factor leading to older parents being left behind by their migrating children in cases of lower socio-economic backgrounds. Conversely, when older parents possess greater disposal income or agricultural land, it tends to influence their decision to stay behind. This decision can be attributed to their familiarity with the existing production methods, lifestyle, and communication practices. This level of habituation allows older adults to establish their own social position within the ongoing mechanism. Elderly parents from economically disadvantaged backgrounds mostly stay in their native place because their children have moved away to support the family financially. In contrast, those from more affluent backgrounds often choose to remain in their native places due to a strong feeling of nostalgia and emotional connection.

Attitude Towards COVID- 19 Among The Economically Productive Age Group Population Living in Urban and Rural Areas in Northeast India

Dr. Rajkumari Sanatombi Devi, Dr. Sumati Rajkumari, Ghana Priya and Dr. Rajkumari Latasana Devi
Background: 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. Objective: The objective of the study is to identify the significant predictor variables associated with attitude on COVID-19 among the economically productive age group living in urban and rural area of Manipur. Methodology: A descriptive cross sectional survey study was carried out to collect data from 100 individual who were in the economically productive age group of 15- 59 years living in a rural and an urban area in Manipur. Results: The overall percentage of having positive attitude towards COVID-19 was 79%. It was observed from that the maximum number of participant (n = 15, 75%) were in the age group of 15-19 years among the rural population whereas in urban it was in the age group of 20-24 years (n = 16, 64%). The average age of the respondents was 31.25 years. Majority of the respondents were students by occupation (43%) followed by private job (17%) and government service (12%). It was observed that 79% of the respondents had a positive attitude which was higher among the urban residents as compared with the rural residents which was statistically significant (P = 0.007). Educational level of the respondents was the only significant predictor variable associated with participant's attitudes towards COVID-19. Conclusion: Giving the accurate information about the causes, modes of spreads and prevention against the COVID -19 will ensure to bring a behavioural change in attitude among the rural and urban residents in the state Manipur.

Public health insurance coverage in India before and after PM-JAY: repeated cross-sectional analysis of nationally representative survey data

Dr. Sanjay Mohanty, Ashish Kumar Upadhyay, Suraj Maiti, Radhe Shyam Mishra, Fabrice Maurer and Owen O'Donnell

Introduction: The provision of non-contributory public health insurance (NPHI) to marginalized populations is a critical step along the path to Universal Health Coverage. We aimed to assess the extent to which PM-JAY potentially, the world's largest NPHI programme has succeeded in raising health insurance coverage of the poorest two fifths of the population of India. Methods: We used nationally representative data from the National Family Health Survey on 633,699 and 601,509 households in 2015-16 (pre-PM-JAY) and 2019-21 (mostly, post PM-JAY), respectively. We stratified by urban/rural and estimated NPHI coverage nationally, and by state, district, and socioeconomic categories. We decomposed coverage variance between states, districts, and households and measured socioeconomic inequality in coverage. For Uttar Pradesh, we tested whether coverage increased most in districts where PM-JAY had been implemented before the second survey and whether coverage increased most for targeted poorer households in these districts. Results: We estimated that NPHI coverage increased by 11.7 percentage points (pp) (95% CI 11.0, 12.4) and 8.0 pp (95% CI 7.3, 8.7) in rural and urban India, respectively. In rural areas, coverage increased most for targeted households and pro-rich inequality decreased. Geographic inequalities in coverage narrowed. Coverage did not increase more in states that

implemented PM-JAY. In Uttar Pradesh, the coverage increase was larger by 3.4 pp (95% CI 0.9, 6.0) and 4.2 pp (95% CI 1.2, 7.1) in rural and urban areas, respectively, in districts exposed to PM-JAY and the increase was 3.5 pp (95% CI 0.9, 6.1) larger for targeted households in these districts. Conclusion: The introduction of PM-JAY coincided with increased public health insurance coverage and decreased inequality in coverage. But the gains cannot all be plausibly attributed to PM-JAY, and they are insufficient to reach the goal of universal coverage of the poor.

Evolving Mortality Trends Among Kerala's Elderly: Shifting Patterns from 2006 to 2021
Mr. Arun Jose and Dr Biju Soman

Studying mortality unveils current demographics and future shifts and plays a crucial role in shaping health policies. In the context of Kerala's demographic transition, the prominence of noncommunicable diseases as the leading causes of death underscores the urgency of addressing ageing-related concerns. This study specifically examines the transformation in causes of death within Kerala's population aged 65 and above between 2006 and 2021. It quantifies the Potential Gain in Life Expectancy (PGLE) achievable by eliminating specific causes of death in this age group. Using the data from Kerala's Annual Vital Statistics spanning 2006 to 2021, we analyzed mortality data based on cause of death, age, and sex. Proportions of cause-specific deaths among those aged 65 and above were calculated, and annual life tables were constructed for both sexes. Employing multiple decrement life table techniques, we assessed the PGLE resulting from removing selected causes of death. Over the examined period, a significant shift in mortality patterns occurred among individuals aged 65 and above in Kerala. Notably, the percentage of deaths attributed to senility surged from 8.9% to 27.91%. Furthermore, in 2021, it was determined that eliminating heart diseases, cancer, respiratory diseases, and communicable diseases at age 65 could lead to potential gains in life expectancy of 3.6, 1.9, 2.8, and 5.8 years, respectively. Addressing these evolving mortality trends necessitates strategic interventions. Prioritizing regular health monitoring, promoting healthier dietary choices, and encouraging increased physical activity emerge as pivotal strategies for healthier ageing. Empowering older adults to enjoy prolonged periods of health and vitality aligns with comprehensive well-being objectives and fosters resilience in the face of evolving demographics.

Application of Design Thinking to Develop Groupware for Women Safety

Mr. Praveen Kumar

Women's safety is a significant problem in a country like India. Almost half of our population is a direct victim of this problem. A country like India cannot develop by letting half of its population behind. If appropriate measures are not taken to solve this problem, then our country's reputation will be at stake. This project focuses on studying eve-teasing and sexual violence against women and finding solutions for women's safety in India. In this project, I tried to see some of the key aspects of this problem: the psychology of harassers, the effectiveness of available solutions(apps/devices), society reaction, the mental condition of victims, etc. The research methodologies used are Primary research and Secondary research, which include surveys, personal interviews, and literature review/desk research. After getting key insights from the study, I finally arrived at a smartphone App-based solution. The app is GPS-based, enabling the victim to share location and send messages to nearby people whenever she is in danger. This app has also simplified the police complaint system and counseling services for women. Furthermore, this app helps girls to trace the identity of the harasser and record the evidence/picture of the incident. Finally, the prototype of the user interface was made with the help of various software like Figma, Adobe Xd, Photoshop, Illustrator, etc. To get the shortcoming of the final design and see how users interact with the interface, user testing of the app was done with four users. Their insights were recorded to implement in future refinement. Thus, the project aims to make some positive changes toward gender discrimination/inequality in society.

The Multitude Effect of Intersectional Axes of Caste-Gender-Disability on Individuals Aid Facility, Work and Social Protection

Miss. Komal Sureshrao Gajbhiye

This study explores how the confluence of Caste, Gender, and Disability impacts individuals' access to aid, care, work opportunities, and public services. Amid globalization, the compounded effect of disability with other social identities intensifies inequality. Using data from the 76th round of the National Sample Survey Organization's Survey of Persons with Disabilities (July-December 2018), involving 576,569 respondents, including 106,894 with disabilities, the study uses the "Leveraging social advantages" framework to grasp socio-economic disparities. Findings reveal that those with Scheduled Castes/Tribes identification and disabilities, especially women, face more challenges accessing government benefits like transit facilities and pensions than other social groups. SC/ST women with disabilities receive the most minor employment assistance, followed by men from the same group and different categories. In contrast, Forward caste individuals have better job and pension access. The study also links employment and educational achievements. SCs/STs with disabilities face compounded disadvantages, while disabled upper-caste individuals access public resources more than lower caste counterparts. Lower-caste women have reduced access to public infrastructure compared to their higher-caste counterparts. In conclusion, the study stresses unequal opportunities for lower caste individuals with disabilities, exacerbating employment challenges and potential post-impairment job loss. SCs/STs face broader disadvantages across life aspects with limited education access. It highlights disability heterogeneity, advocating targeted attention for those with disabilities from disadvantaged socio-economic backgrounds and promoting inclusivity.

Sustainable Development Goals and WASH in Gram Panchayats of India: An Exploratory Study on Gram Panchayat Development Plan, 2023-24

Sabari Bandyopadhyay and Dr. M.N. Roy

Gram Panchayat as Local Self Government has an important role to achieve the Sustainable Development Goals (SDGs) in rural India. Government of India has mapped the National Indicator Framework (NIF) for attaining SDGs. The NIF has categorized all the SDG-related targets under nine broad themes. Out of the nine themes: Water Sufficient Village and partly Clean and Green Village are related to WASH (Water, Sanitation and Hygiene) sector. The objective of the present study to examine the GPDP of different Gram Panchayats across the country, (i) to highlight the planned activities, those are part of WASH sector based on the themes - water sufficient village and clean and green village (ii) to observe the diversities and similarities of the activities and also (iii) the role of GP own source revenue. The proposed study has used mainly secondary data from https://egramswaraj.gov.in/. The highest ranked state from each of the six regions (East, West, North, South and North-East) of India has been selected on the basis of the Devolution index of 2015-16. After selecting the states purposively, three stage sampling has been adopted. In the first stage, ten districts from each of the selected state has been selected at a random. In the second stage, four blocks from each of the selected district have been selected at random. In the third stage, one GP has been selected from each of the selected block. The study has found diversities of activities planned by the GPs.

Unveiling the Educational Toll of Displacement: A Case Study of Chandil Dam in India

Mr. Bishwajeet Besra

Dams, the result of centuries of engineering innovation, are testaments to human civilization's progress. India, a notable dam-building nation and the third-largest globally, boasts over 5700 large dams (CWC, 2019). Nonetheless, the construction of these feats of engineering has compelled the relocation of

countless individuals, upending their lives, cultures, and economies. The Chandil Dam in Jharkhand's Saraikela-Kharsawan district exemplifies this issue. Built-in the 1980s to provide water for industry and irrigation. In the realm of development, education shines as a pivotal catalyst, nurturing skills, knowledge, and economic prosperity. Tragically, displacement erects formidable barriers to education, particularly for children (Kaushal, 2009). This study endeavors to illuminate the educational ramifications of the Chandil dam-induced displacement. Employing a mixed-methods approach, it combines quantitative data analysis with qualitative data collection. Surveying 300 displaced households across Chandil, Ichagarh, and Nimdih blocks in Saraikela-Kharsawan, the research draws insights from two distinct groups: those resettled in the SPM sites and those employed by the dam project. The adverse impact of population displacement on Sustainable Development Goal 4, "Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all," comes into sharp focus. Preliminary findings underscore that educational attainment among individuals from resettled households' pales compared to those currently engaged in the dam project, with pronounced disparities for females. The educational landscape further diverges as children from displaced households lacking stable incomes tend to enroll in nearby government schools, while those with dam project employment opt for private institutions for primary and secondary education. The study concludes that dam projects must include education as a key component of their resettlement and rehabilitation policy. This includes providing access to quality education, financial assistance for education, and training for displaced workers. By taking these steps, dam projects can help mitigate displacement's negative impact on education.

The Impact of Topography on Healthcare Access in Purulia District of West Bengal

Miss. Shagufta Naaz and Dr. Md. Anisujjaman

Access to quality healthcare is a fundamental human right that is influenced by a myriad of factors, including geographical features. This study delves into complex interplay between topographical features and healthcare accessibility in the Purulia district of West Bengal, India. In addition to having a varied population, Purulia has significant topographical characteristics such as, rocky terrain, hills, valleys, rivers, etc. These geographic factors have the potential to have a substantial impact on the accessibility and use of healthcare services across the Purulia district which will have an effect on the general health of the specific population. This study uses geospatial analytic methods to examine how topography influences the accessibility of healthcare services in Purulia where healthcare facilities and population density are mapped onto the topographical terrain using for analysis. The paper intends to discover the specific parts of the district that are particularly difficult to reach due to the rough topography by examining these layers together with population data. According to outcome of the study definitely influences how easily people can get healthcare. There is frequently a lack of healthcare infrastructure in rural and hilly locations, which limits access to treatment. The results have ramifications for Purulia's healthcare planning and strategy as well. Making strategic decisions about where to locate new clinics, hospitals, and emergency services can be influenced by understanding how healthcare facilities are distributed spatially in respect to topography.

Health Care Utilization Among Currently Married and Widowed Women in India: Evidence from Longitudinal Ageing Study Of (Wave-1) In India, 2017-18

Miss. Kshirabdhi Tanaya Patra

The dimension of healthcare-seeking behavior is an intermediary step to ensuring well-being among the population. There is a persistent knowledge gap about health disparities in India, specifically with regard to marital status and background characteristics. In this situation, patterns of morbidity and health care use may serve as proxies for continuing health disparities among married and widowed people in India. This study is an attempt to understand the relationship between health care facility utilization in the currently married and widowed female population by socio-economic characteristics in India for the period 2017-18. The Longitudinal Ageing Study in India (LASI) is a full-scale national survey of

scientific investigation of India's health, economic, and social determinants and consequences of population aging. The study includes a dependent variable, out-patient health care use, which is constructed for those respondents who received medical treatment as an out-patient in a medical institution during the last 365 days. The independent variables consist of measures of marital status (currently married and widowed female population), age of the respondents, health insurance coverage, type of work, wealth index, Education, place of residence, living arrangements, social groups, and religion. Multivariate logistic regression is used to understand the variation in health care seeking behavior of currently married and widowed women in India. In terms of wealth status, married women in the affluent wealth quintile are 27 percent less likely to prefer public facilities to private facilities. 24% of widowed females in the poor wealth quintile are less likely to use public health care centers over private health care centers. Widowed women prefer to go to public hospitals and dispensaries for ailments due to the low-cost treatment options. As marital status changes, the differences in health outcomes in terms of outpatient ratio vary between married and widowed adults. The educational level, economic condition, and living arrangements also influence the decision to use a particular health care service. The availability of health insurance also influences treatment-seeking behavior. Healthcare options need to be viewed laterally by combining mainstream care with other alternatives such as alternative medicine, therapies, meditation, spirituality, and the enhancement of social networks.

Harmonizing Identities: Unraveling LGBTQ+ Odysseys in India's Mosaic

Miss. Apurva Das

In the diverse milieu of India, a historical receptivity to diverse thoughts contrasts starkly with prevailing LGBTQ+ attitudes characterized by discrimination and hesitancy. This marginalized group has endured centuries of systemic suppression, prompting an exploration into the dynamics shaping LGBTQ+ trajectories in India, intricately linked with psychosocial and legal dimensions. Numerous endeavors, led by diverse entities, have sought rights and societal integration for the LGBTQ+ community. Yet, these efforts confronted systemic barriers, notably the anti-homosexuality law, Section 377, criminalizing same-sex acts in India. Not until 2018 did the Supreme Court's intervention repeal this provision, heralding a transformative juncture in legal and societal recognition. This granted the LGBTQ+ community newfound freedoms, fostering heightened societal acceptance. Through a robust psychosocial legal lens, the paper intricately dissects diverse LGBTQ+ journeys as they harmonize personal authenticity and societal integration. It reveals the interplay between evolving legal frameworks and the psychological underpinnings of identity formation, along with changing dynamics within the community. By evaluating pivotal legal milestones in the historical progression of LGBTQ+ rights, the study unveils the intricate relationship between legal changes and their reverberations within individuals and groups. The paper delves into the challenges faced and strides made towards LGBTQ+ equality, highlighting lived experiences, relationships, resilience, and activism in the evolving legal landscape. Employing a descriptive approach, it navigates the evolving acceptance of LGBTQ+ individuals in India.

Impact Of Functional Health on Depression Among Rural and Urban Older Adults in India: Insights From LASI

Mr. Sandip Das and Dr. Dhananjay Bansod

Objective: In the WHO Healthy-ageing framework, functional ability is one of the main domains to assess the healthy ageing of older adults. This study aims to determine how functional health impacts depression among urban and rural older adults aged 60 and above in all the states of India. Methodology: The data was obtained from wave 1 of the Longitudinal Ageing Study in India, conducted in 2017-2018. 30,112 individuals aged 60 and above from all the states are included in this study. The Functional health in this study meant functional limitations consisting of personal activities of daily living (ADLs) and instrumental activities of daily living (IADLs). Depression was assessed using the Composite

International Diagnostic Interview-Short Form (CIDI-SF) scale. Furthermore, descriptive statistics and logistic regression models were used to show the association between functional ability and depression. Results: This study found that older adults living in rural areas are more dependent (56.36%) than older adults living in urban areas (43.6%) in India. Also, the prevalence of depression is high in rural older adults (7.6%; 95%CI 0.07-0.08) than the urban older adults (5.7% (0.05-0.06). The adjusted regression model revealed that older adults who were completely dependent were 4.2 times more likely to have major depression [OR: 4.2, CI: 3.64-4.81] than those who were completely independent. It is 1.9 times higher in the central region [OR: 1.9, CI: 1.66-2.25] and 0.4 and 0.7 times lower in the north-eastern [OR: 0.4, CI: 0.35-0.57] and south [OR: 0.7, CI: 0.59-0.81] region than the northern region. Conclusion: Older people with decreased functional ability are more likely to experience depression. Those with moderate dependence, as opposed to those with total dependence, had the highest likelihood of depression. Therefore, interventions involving many sectors, such as social and family assistance, are required.

Exploring Sexual and Reproductive Health Awareness and Attitude towards Sex Education among College Youth in Mumbai

Mr. Pragati Ubale

In India, formal sex education is largely absent due to entrenched social taboos. Nevertheless, modernization and digital ubiquity have fueled a permissive attitude among the youth towards premarital sex and their involvement in it, especially in metropolitan areas like Mumbai. In such situations, understanding youth's SRH knowledge and their attitudes, experience and perceptions regarding sex education is crucial. The findings are from a study involving 842 college students aged 20-27 across 30+ Mumbai colleges. We employed descriptive, univariate, bivariate and multivariate statistics to draw conclusions from the data. Findings of this study showed that, only 45% of youth had right knowledge of ovulation, male condom (94.30%) and Emergency contraceptive pills (75.89%) were dominantly known contraceptives, and only 47% of youth had comprehensive HIV/AIDS knowledge. Seventy-one percent of youth were aware of the legality of abortion for unmarried women and, 70% of youth accurately reported age of sexual consent for females, while 47% did so for the age of consent for men. More women (82.15%) than men (71.65%) strongly emphasized discussing consent before sex. Ninety-five percent of youth unanimously support sex education in schools and colleges. The majority of the youth relied on the internet (86%) and friends (73%) for sexuality knowledge. This study shows that youth prefer healthcare practitioners (70%), followed by teachers (57%) and parents (50%), as sex educators. The suggested mean age for imparting sex education by the sample is 12.92 years. In this study, youth's knowledge of SRH and their perceptions of sex education varied significantly based on age, gender, caste, religion, wealth, education, parental education, employment, and technology usage. The findings of this study showed though the sample of this study is of college-going youth and from Mumbai, still a significant proportion of youth lacked knowledge of SRHR. Hence, this study reiterates the need for comprehensive and age-appropriate sex education in India's schools and colleges.

Poverty, Health and Nutrition among Scheduled Tribes in India: An Overview

Dr. Rudra Narayan Mishra

Scheduled Tribe Population constitutes 8.6 per cent of the total population in India as per 2011 census. For various reasons like being predominantly rural, living in remote areas, largely depending upon subsistence agriculture, having unique social custom and systems have made tribal population lagging behind in basic human development indicators. Outcomes related to health, education and income found to be lower than counterparts from other social groups. Due to sustained effort of the state sponsored affirmative action the tribal population has gained in political, social and economic front over the decades. This paper attempt to look at the change in pattern of poverty, health and nutrition outcomes because of such efforts. It looks at NSSO consumption expenditure surveys and National Family Health Surveys for overall improvement in conditions of tribals. The analysis and findings of the paper relies more on triangulation of different secondary sources to draw conclusions for policy

prescription. The analysis shows though there is decline in poverty and undernutrition among the tribal population, the pace of decline is slower than the other social groups. Utilisation of maternal and child health care services among women and pre-school children from tribal groups also show huge gap vis-Ã -vis the other social groups. The prevalence of forced migration and constraints in present delivery systems of welfare programmes hampers the sustained gain from different interventions for tribals. Specific interventions keeping in view the spatial constraints for tribals will be helpful to bridge gap between tribals and other social groups.

Do increasing Number of Antenatal Care Visits Improve the Quality of Utilization of Antenatal Care Services in India

Dr. Bashir Ahmed Bhat

RCH programme guidelines in India also recommend minimum of 4 ANC visits during pregnancy. As per NFHS-5, 58 percent of women in India had 4 or more ANC visits. But there are State variations in percentage of women who had 4 or more ANC visits ranging from 25 percent in Bihar to more than 80 percent in JK, Kerala and TN. ANC 4 or more visits has increased by less than 10 percentage points in 5 States, 11-20 percent points in 5 and in two States it has increased by 21-30 percentage points. The average No. of ANC visits as per NFHS-4 in J&K, Kerala, Karnataka and Tamil Nadu is more than 8 and there are few women who have had more than 20 ANC visits. While as per the RCH guidelines a pregnant women should be provided all recommend RCH services during ANC services but NFHS-4 shows that less than 30 percent of women in India have receive full ANC services during NFHS-5. Similarly, In Jammu and Kashmir despite 80 percent of women have had 4 or more ANC visits but full range of services have been utilized by less than 30 percent. Same is true for Karnataka, WB and other states. So this raises an important question whether more than 4 ANC visits increases the quality of ANC services. We find very limited work in this area. This study proposes to look into this aspect with special focus on J&K. The objective of this study is to study the trends in the No. of ANC visits and Utilization of Full ANC Coverage and to examine the association between No. of ANC Visits and Utilization of Full ANC Services. We will use data from various rounds of NFHS for this study. Bivariate and Multivariate techniques will be used to know the association of ANC visits on the quality of ANC services in India and for those states where more than 70 percent of women have more than 4 ANC visits during last pregnancy.

Pregnancy Induced Hypertension and Risk of Cardiovascular Diseases in Indian Women

Dr. Dipanjali Haloi and Labhita Das

Background: Pregnancy-induced hypertension (PIH) is usually developing after the 20th weeks of pregnancy. Chronic hypertension is defined as a state of blood pressure exceeding 140/90 mm Hg before pregnancy or before 20 weeks' of gestation. Epidemiological data suggest that women with hypertensive disorders of pregnancy (HDP) are more likely to develop renal failure, cardiovascular risk, and diabetes, later in life. Objective: To explore the association between Hypertensive disorders in pregnancy and risk of developing cardiovascular diseases in later life. Data source: Fifth round of National Family and Health Survey (NFHS-5) is used for the analysis purpose. Methodology: Differences in categorical variables were tested using Pearson's (chi-square) statistic. The effect of symptoms suggestive of Preeclampsia & Eclampsia on self-reported cardiovascular disease risk was estimated using Multivariable logistic regression analysis. Results are shown in Odds Ratios with 95% Confidence Intervals. Results: 1.62% of women with symptoms of preeclampsia developed cardiovascular diseases which is 0.79% among the women not showing preeclampsia symptoms. (Pearson chi-square 235.021, p<0.0001). Among the women not suffering from Eclampsia 0.8% reported heart disease, and among the Eclamptic women, 1.81% reported of having heart disease. (Pearson chi-square 161.489, p<0.0001). In the multivariate model, the likelihood of having cardiovascular diseases was significantly higher among women who reported Preeclampsia symptoms

(OR 2.59; p<0.0001) and shows the same result for Eclampsia symptoms (OR 2.67; p<0.0001) as compared to those who did not report these symptoms. Conclusion: Pregnancy-induced hypertension is positively associated with the development of cardiovascular diseases later in life in Indian women. Counseling and follow up of women with history of hypertensive disorder in pregnancy would offer a window of opportunity for preventing future cardiovascular diseases.

A Comparative Analysis of Terminated Pregnancies Among 15-29 Years Old Indian Women Based on NFHS-3 and NFHS-5 Data

Miss. Anusree Manoharan, Aravind Nair and Dr. Angan Sengupta
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This study examines the association between selected socio-economic factors and termination of pregnancy among Indian women aged between 15 and 29 years. The study compares National Family Health Survey -3 data (2005-06) and National Family Health Survey -5 data (2019-21) with a sample size of 68007 females (NFHS-3) & 359128 females (NFHS-5) between the age category of 15-29. The highest number of pregnancy terminations in NFHS-5 has been observed in Haryana (9.8%) and Andhra Pradesh (9.6%) while in NFHS-3, Bihar and Assam has the highest level of terminated pregnancies with 14.8% and Assam 13% respectively. The results from logistic regression suggest that the likelihood for pregnancy termination is significantly higher in the age groups of 20-24 and 25-29 by 3.1 times and 4.7 times respectively in the former data and it increases up to 4.7 times and 7.1 times respectively in NFHS-5 dataset. It has been noted that wealth index and Place of residence has less role in determining the total number of terminations. However, the odds of termination decrease by 20 percent and 50 percent in NFHS-3 and by 10 percent and 40 percent in NFHS-5 data amongst people with highest level education as secondary or higher respectively. Additionally, the number of children a woman has, has proved to be significant factor in the analyses. On comparing both the dataset we observed that women with 1, 2 and more than 2 children have higher odds of undergoing pregnancy termination with respect to women without children ever born, and this number has increased subsequently over the years with the increase in number of children. Besides, the cultural factors like religion and caste has shown to have the least influence on pregnancy terminations in this age category.

High Impact Interventions addressing Family Planning Needs of Urban India: Evidence from The Challenge Initiative

Dr. Neelanjana Pandey, Hitesh Sahni, Mukesh Kumar Sharma and Basant Kumar Panda

Adoption of family planning methods has improved India, but the pace of improvement observed in modern contraceptive use in urban areas remained lower compared to rural areas. The need to focus on urban-low-income settlements is critical due to relatively poor health outcomes requiring contextual focus and health system's administrative attention. The Challenge Initiative (TCI) was implemented by PSI India during 2016 and 2020 in 31 cities of three states: Uttar Pradesh, Madhya Pradesh, and Odisha of India. The programme adopted high-impact interventions supporting public health system such as optimal family planning service provision at urban primary health centers, outreach camps, during urban health and nutrition days, and capacity building of health care providers on new contraceptive options, their potential side effects, training on effective management of supply and other logistics. Drawing on two rounds of data collected to track progress of TCI, Output Tracking Surveys (OTS), 2018 and 2019 were conducted. This paper examines the effect of the TCI program on use of modern contraceptives, modern reversible contraceptives among currently married women, and underlines the need for expansion to larger geographies and focus on relevant population groups that require attention and support in ongoing initiatives. Program exposure in slums was much higher than in non-slum. The use of any modern reversible contraceptives was higher among women exposed to any family planning program than among those who were not exposed - 35% vs. 28% among all urban women, 34% vs. 30% among women from non-slum areas, and 35% vs. 23% among women from slum areas. Adjusting for socioeconomic profile, findings were consistent adjusted odds ratio (AOR) for using modern

reversible contraceptives was 1.31 (p<0.001) for all urban women exposed to programme and AOR was 1.5 (p<0.001) for women from slum areas, exposed to programme in comparison to those not exposed.

Intimate Partner Violence and Prevalence of Anemia among Women in India

Dr. Indrani Roy Chowdhury and Anusree Paul

Globally, one-third of women have reported that their partner has physically, sexually, or emotionally abused them, and India is not an exception. Around 31.9% of Indian women faced violence either in the form of physical, emotional, or sexual abuse (NFHS-5). Intimate partner violence (IPV) may instigate cumulative levels of deprivation and psycho-social stress and may trigger the risks of anemia in women. Moreover, anemia can have a significant impact on women's physical, mental, and sexual health, it can disrupt the ability of the anemic women to deliver household and marital responsibilities leading to conflicts between her and her partner. So, the inability to efficiently perform daily household tasks can trigger violence against them. Therefore, having anemia can also be one of the reasons for the husband/partner being violent. According to NFHS-5, more than half of the Indian married women (56%) within 15-49 years are anemic. Moreover, 32.8% of anemic women within the age group of 15 - 45 years are victims of any form of IPV. Against this backdrop, the proposed study seeks to investigate a causal association between IPV and women's health outcomes, particularly anemia and body weight, in India using the recent round of the National Family Health Survey. The paper also explores the possibility of reverse causality of the prevalence of anemia triggering domestic violence. The proposed methods include propensity score matching (PSM) for establishing the causality. Preliminary results obtained from PSM indicate a significant impact of verbal and physical violence by the partner on women being anemic. Sexual violence, however, significantly impacts women being underweight. The study also found a significant impact of anemia on verbal abuse. However, the impact on other types of violence remains insignificant. We further explore the relationship between the two across different heterogeneous groups and various matching methods for robustness check.

Intergenerational-fertility Preferences in Saharsa District, Bihar: Micro Level Analysis (Field-Based Study)

Miss. Shanu Priya and Prof. Anuradha Banerjee

The basic objective of this paper is to study the fertility preferences among two generations in different family types across various socio-economic groups in the field area is done. A household filed survey was conducted in the Saharsa district to fulfill the objective of the study. A mix method approach has been used for the data analysis of the field area. Household survey of around 450 households in Saharsa district comprising of various CD/ Blocks across various caste religion and types of family was conducted. The women of the age group 15-45 basically of the fertile age group and who could reproduce and were married in the daughter-in-law group were surveyed. It was ensured that the daughter-in-law being surveyed had their mother-in-law in the family, it was also ensured that the women of the nuclear families too had their mother-in-law living around. Similar sets of question for the daughter-in-law and mother-in-law was asked regarding the fertility preferences of each generation. The data analysis of the household survey done in various villages of Saharsa district, among generations reveals improvement in the socio-economic status of current generation over previous generation, especially in terms of house-hold indicators. this paper does complete primary level analysis how within families and type of families the fertility preference has changed and influence of mother-in-law on their daughter in-law in the fertility making decisions, and preferably contributing towards high population growth in Bihar and slow decline of fertility.

Even Inequalities Are Not Equal in India: An Analysis of Progress in The Coverage of Maternal and Child Health Indicators Since Last Two Decades

Miss. Rimjhim and Abhishek Kumar

Reducing inequality in MCH (maternal and child health) indicators is a major public health priority. Since the onset of the National Health Mission, India witnessed an improvement in MCH indicators and reduced inequalities. However, the coverage is not uniform across socio-economic gradients and different geographic locations. Therefore, this study sought to understand the gaps in coverage of MCH indicators by wealth status of individuals using the three rounds of nationally representative data of the National Family Health Survey from 2005 to 2019-21. Measures of inequality for full ANC (Antenatal Care), institutional births, PNC (Postnatal Care) of mothers within 48 hours, and FIC (Full Immunization Coverage) have been assessed through SII (Slope Index of Inequalities) and RII (Relative Index of Inequalities) at districts and states level in India. Hotspot analysis using geographical information systems has been done to understand the shift of regions of inequality over some time. Results show that coverage has increased and the gap has reduced in the last two decades, however, the poorest wealth quintile in all the outcome variables has still not reached the level of the richest wealth quintile, even at the level of 2005. At the national level, there is pro-rich inequality in the utilization of Full ANC, Institutional Delivery, PNC, and FIC in NFHS 2005-06, with the highest in Full ANC. In the latest round, inequality was significantly reduced for all outcome indicators. The maximum reduction was seen in FIC, where the inequality curve was very close to the line of equity. Moreover, spatial observation reflects that the northeast region of the country witnessed the least progress in the reduction of inequalities. Findings suggest that adding a spatial perspective to inequality research along with continued efforts for the development of effective and targeted strategies will be essential for reducing health inequality in India.

Impact Of Heterogeneity on Birth Intervals

Dr. Anup Kumar and RC Yadava

Heterogeneity is sometimes used as a synonym for variability or diversity and places difficulties in the way of interpretation of all statistical data based on averages. It introduces a clear bias in the mean as customarily estimated. That bias arises because of a selection effect. This selective effect underestimates the rates to which the average individual will be subject. But, through the approach of mathematical modelling such a problem can be tackled, though, some of the problems might arise. Thus, there seems to be a need to investigate the behaviour of consecutive intervals under the condition of heterogeneity in the population with respect to certain fertility parameters. In this paper, expression for correlation coefficient between consecutive closed birth intervals is derived under specific assumptions including the as- Sumption of heterogeneity in the population with respect to conception rate. The impact of heterogeneity in conception rate on the distribution and mean of open birth interval is also explored.

Impact of Husband Migration on Maternal Healthcare and Women's Autonomy in Rural Koch Bihar, West Bengal, India

Mr. Moslem Hossain and Sanjit Sarkar

Background: Maternal health and women's empowerment are essential for promoting the well-being of women and children, with implications spanning gender equality, sustainable development, economic productivity, social justice, and equity. Data & Methods: This study aims to comprehend the impact of husband migration on maternal healthcare services and the decision-making autonomy of women left behind in West Bengal's Koch Bihar district. The fieldwork took place in the rural Koch Bihar district between October 2022 and February 2023. It encompassed multi-stage random sampling and face-to-face interviews, employing structured interview schedules with 384 women aged 15-49 who had given

birth to live babies within five years preceding the survey. Among these women, 192 had migrant husbands, while the other 192 had resident husbands. The study's objective was to assess disparities in access to maternal health services and decision-making authority, utilizing Binary and Multivariate logistic regression techniques. Results: The findings indicate that resident husbands actively supported various aspects of maternal healthcare, including providing advice, accompanying women for antenatal visits, lessening household responsibilities, and arranging institutional delivery care. After controlling for other variables, economic autonomy correlated with a reduced likelihood of discussing matters with resident husbands. Simultaneously, women with migrant husbands were more likely to possess financial autonomy. The multivariate analysis emphasized that women with resident husbands had lower movement autonomy than those with migrant husbands. Additionally, intra-spousal communication was linked to a higher probability of health discussions with husbands among women with migrant husbands compared to those with resident husbands. However, women with resident husbands were more likely to attend antenatal care visits than women with migrant husbands. Conclusion: These findings underscore the necessity for targeted interventions and policies addressing the specific needs of left-behind women, thus promoting their well-being. Such interventions play a pivotal role in enhancing maternal health outcomes, women's empowerment, and autonomy.

Gender Wage Gap Using Unconditional Quantile Regression in Urban India

Mr. Samapriya Trivedi and Shambhavi Mishra

The "wage gap" concept refers to the disparity in pay or compensation between different groups of employees, i.e., the disparity in their hourly, daily, or annual wages. In India, the gender wage disparity exhibits variation in urban regions across almost all sectors and professions. The study employed Unconditional Quantile Regression (UQR) with the utilization of Recentered Influence Function (RIF) to examine the effects of various covariates on the unconditional quantiles of salaries among male and female employees in the urban sector of India. The Oaxaca-Blinder RIF decomposition method was employed to partition the overall variation observed at specific quantiles of wage distribution into two components: the impact of changes in the distribution of covariates on the characteristics and composition. The Periodic Labour Force Survey (PLFS) 2021-22 unit-level data conducted by the National Statistical Office (NSO) was utilized for the study. The impact of age, social group, and technical education on salaries was nearly identical for male and female workers in metropolitan areas of India. Nevertheless, there was a disparity in the impact of marital status and educational attainment on the wages of both male and female urban workers. Except for sales and service, other occupations significantly positively impacted salaries compared to labour and unskilled workers. The influence of regular/salaried employment on earnings varied depending on the percentile. For workers at the lower percentile, regular/salaried employment had a considerably negative effect on wages. The decomposition analysis findings indicated a persistent salary gap between males and females, with males consistently experiencing more advantageous wage differentials. Women at the lower end of the wage distribution had more pronounced discrimination. Nevertheless, a significant portion of the wage disparity remained unaccounted for, particularly among individuals in the upper percentiles of the income spectrum.

Prevalence Of Occupational Toxicity and Associated Factors Among the Farmers in Tripura, India

Mr. Dipak Kumar Das and Prof. Murali Dhar

Agriculture, being the third most hazardous occupation among all sectors in the world, is an important public health problem. Farmers use huge amounts of inorganic pesticides and/or fertilizers (agrochemicals) without any training or proper personal safety to fulfill the food demand. As a result, they are more exposed to health problems related to agrochemicals. Therefore, the aim of the present study was to assess the toxicity pattern among farmers while applying agrochemicals in Tripura, India. Primary data was collected from 995 farmers from Dhalai district following multistage stratified random

sampling. A semi-structured questionnaire was developed and pre-tested. Approval from the Student Research Ethics Committee (SREC) of the International Institute for Population Sciences (IIPS), Mumbai, was obtained. Informed written consent was obtained from individual respondents before administering the questionnaire. Bivariate analysis was used to assess the pattern of toxicity, and the Chi-square test was applied to test the significance of the association with the factors under consideration. Finally, logistic regression was applied to examine the factors independently associated with different toxicities. Above one-third (39%) of the farmers reported toxicity symptoms while using agrochemicals. The proportion was higher among males than females. The major toxicity symptoms were skin-rash (16%), vomiting (12%), skin redness (10%), headache (7%), and excessive sweating (6%). Age, sex, occupation, smoking, and drinking behavior were significantly associated factors. There is a need for organizing educational and training camps to acquaint the farmers with safe professional practices and personal hygiene. In addition, there is a need to examine the farmer welfare government schemes to ensure their reach at the gross-root level.

Survival Modelling of Neonatal mortality under some prognostic factors in Uttar Pradesh

Miss. Shalini Jaiswal and Shambhavi Mishra

Neonatal Mortality has remained a major point of interest globally. It is one of the most important indicators of a country's general medical and public health conditions and, consequently, the country's level of socio-economic development. Its decline is, therefore, desirable and indicative of an improvement in general living standards. Neonatal mortality is the probability of a child dying within the first 28 days of birth. Survival models play a critical role in comprehending mortality trends and determinants. Depending on the data's nature, available parameters, and appropriate survival models, there is an opportunity to explore neonatal mortality and its determinants. This study aims to determine the prognostic factors related to neonatal mortality in Uttar Pradesh, India, using semi-parametric (Cox-proportional hazard) and parametric (Weibull and Exponential) models. The National Family Health Survey (NFHS-5) data pertaining to newborn children in Uttar Pradesh, India, was utilised for this study. A Cox regression analysis was conducted to identify the main associated factors of neonatal mortality. The estimation was performed using parametric models, specifically the Weibull and Exponential models. The Cox proportional hazard model revealed that socioeconomic and demographic variables, including the mother's education level, religion, age and occupation, current employment status, caste, and environmental factors including place of residence, and wealth index, did not significantly correlate with neonatal mortality in Uttar Pradesh. However, biological factors such as the birth weight of the child and the place of delivery were found to be significant for neonatal mortality in Uttar Pradesh, India. According to the minimum value of the Akaike Information Criterion (AIC=4052.705), it was determined that the exponential model exhibited greater significance compared to the Weibull model. The study concludes that birth weight and place of delivery have the most significant influence on neonatal mortality.

Closing the Gap: A Study of Horizontal and Vertical Inequity in Healthcare Utilization for Non-Communicable Diseases in India

Miss. Sasmita Behera and Jalandhar Pradhan

Background One of the principal objectives of Universal Health Coverage (UHC) is to provide equitable access to healthcare services to those in need without imposing any financial risk. However, issues in access to healthcare are one of the major barriers to achieve equity in healthcare utilization. This study aims to measure horizontal and vertical inequity in healthcare utilization among individuals with Non-communicable diseases (NCDs) in India and identify the factors contributing to the inequity by decomposition analysis. Data and Methods The data used in the present study has been compiled from the 75th round of the National Sample Survey Organization (NSSO). The study has used concentration curves, the Wagstaff decomposition method, and horizontal and vertical inequity index to analyze inequity. In addition, the Generalized Linear Model (GLM) is used to analyze the

determinants of healthcare utilization. Results The results of our study indicate that rich individuals exhibit significantly higher healthcare utilization compared to the poor. The result of the decomposition analysis shows that the inappropriate difference in the contribution of need variables, such as health index and age, between all and the target group is a major driver of pro-rich VI in healthcare utilization. Similarly, the main drivers of pro-rich HI in healthcare utilization are non-need factors, particularly income, residence, and lack of access to clean cooking fuel. Conclusion This study reveals that healthcare utilization in India is primarily influenced by socioeconomic status rather than healthcare needs. In order to achieve a fair and equal distribution of healthcare services, it is imperative to exclude the influence of income on healthcare utilization by enhancing the public health infrastructure, facilitating the efficient provision of public health services, and fostering collaboration among the healthcare system and others in India.

Loneliness and Social Isolation as Determinants of Cognition in Older Adults: Does Psychological Well-being Matter?

Miss. Bijeta Mishra and Jalandhar Pradhan

Objectives: The study investigates the impact of loneliness and social isolation on cognition of older adults. It explores the mediating impact of psychological well-being on the association of loneliness, social isolation, and cognition among older adults. Method: Data was collected from the inhabitants of several old-age homes in Odisha, India. Participants were selected using purposive sampling, and 320 older adults ($>= 60$ years) participated in the study. Standardized assessments like Revised UCLA Loneliness Scale, Lubben Social Network Scale-6 (LSNS-6), Ryff's Psychological Well-Being Scale, and Mini-Mental State Examination (MMSE) were used for data collection. Regression and mediation analysis were conducted to analyze the findings. Results: A significant regression equation was obtained ($F=19.28$, $p<.01$), with an $R2$ of 0.154, suggesting that loneliness had a significant impact on the cognitive functioning of older adults. Additionally, both social isolation ($z= -4.71**$) and loneliness ($z= 4.03**$) had significant indirect effect on the cognitive functioning of participants along with the mediating effect of psychological well-being. Conclusion: The study suggests that loneliness, social isolation, and psychological well-being can be considered vital antecedents of cognition. Results of this study can be incorporated into formulating interventions to alleviate loneliness and social isolation, and improve the psychological well-being of older adults.

Level and Differentials of Quality of Antenatal Care among Women in India

Dr. Dhirendra Kumar and Cheryl D Ponnachan

The leading causes of maternal deaths in Inda are Haemorrhage, Infection (sepsis), Eclampsia and obstructed labour accounting about two-third of total maternal deaths. The government India with coordination of two ministries namely Health and Family Welfare and Women and Child Development in line with the guidelines of WHO ensure the delivery of antenatal care during pregnancy and childbirth under National Health Mission through dedicated approach and Schemes such as Surakshit Matratva Ashwasan (SUMAN), LaQshya. Labour Room Quality Improvement Initiative, Pradhan Mantri Matru Vandana Yojana (PMMVY). The objectives of all these schemes are respectful delivery of quality healthcare services at no cost and zero tolerance for denial of services to any woman and newborn visiting a public health facility to reduce maternal and neonatal deaths. The women aged 20-29 are found to be the most victims of maternal deaths which is preventable. NFHS 5 indicates the tremendous improvement in registering women during pregnancy as 94 percent, however, registering in first trimester the figure is 85 percent with differentials across wealth quintile ranging from low as 79% to 89% as high. The similar differences are also found across education and reproductive birth history. Around two-third of women recorded to have ANC from doctors and this figure vary across states widely less than 45% in states namely MP, Chhattisgarh, Bihar, Jharkhand. The women who have received 4 and more ANC visits were only 58 percent and only 44 percent took 100 IFA tables and 83

% received two and more TT injections. Although at national level figure seems overall improvement, however, still there are certain pockets of population where an intensive and focus drive is required to raise awareness among community, strengthen outreach services of government programmes ensure the quality of ANC examination and counselling by skilled providers.

Multidimensional Household Poverty and Intra-household Inequality in child deprivation in India

Miss. Itishree and Jalandhar Pradhan

In 2016, the World Bank estimated that approximately 385 million children worldwide lived in extreme poverty. The United Nations predicts that by 2030, around 167 million children will still be trapped in extreme poverty if urgent action is not taken to improve health and education. This paper proposes methods by using the National Family Health Survey, 2019-21 data to augment a household multidimensional poverty index (MPI) by applying individual-level analyses to the same dataset, and analysing these alongside the matrix of deprivations underlying an MPI. In particular, we scrutinise (i) what proportion of deprived children live in multidimensionally poor households; and (ii) what proportion of deprived children live in households in which other children are not deprived in that same indicator. Finally, we study what proportion of people live in households where children of different ages experience two different child deprivations concurrently. Results indicate that among 0-4 years children, the prevalence of malnutrition is higher among the children who live in MPI-poor households. In MPI-poor households, nearly 24.3 % of children are not attending school compared to 2.3% of their non-poor counterparts. Results also indicate the prevalence of malnourished children in MPI poor households are highest in the Western region, among the SCs followed by STs, and Urban areas compared to their counterparts. Similarly, the prevalence of children not attending school in MPI-poor household are highest in Central region, ST followed by SC, and Urban areas compared to their counterparts. Also, the malnutrition status and out-of-school children in MPI-poor households varied across States/UTs. Specifically, it was observed that intra-household inequality is more prevalent among households experiencing multidimensional poverty. Moreover, the central and eastern regions of the country were found to be particularly vulnerable to both multidimensional poverty and intra-household inequality.

Spatiotemporal Changes and Determinants of Anaemia Among Indian Adolescent Girls: Insights from Indian Demographic and Health Surveys (2015-16 To 2019-21)

Miss. Mahashweta Chakrabarty and Aditya Singh

Background: Anaemia is a significant public health issue, particularly affecting adolescent girls in India. This study aimed to analyse the change in the prevalence of anaemia among adolescent girls in India from 2015 to 2021 and identify the factors associated with anaemia in this population. Method: This study used information on 116,117 and 109,400 adolescent girls (aged 15-19) from the fourth and fifth round of National Family Health Survey, respectively. Bivariate statistics and multivariable logistic regression were employed to identify the statistically significant predictors of anaemia. Results: The prevalence of anaemia among adolescent girls in India increased from 54.2% (99% CI: 53.6-54.8) to 58.9% (99% CI: 58.3-59.5) over the study period (2015-16 to 2019-21). Among the 28 Indian states, 21 reported an increase in the prevalence of anaemia. However, the levels of increase varied across the states. While Assam, Chhattisgarh, and Tripura showed a substantial rise of 15 percentage points, the states of Punjab, Karnataka, Telangana, Bihar, and Madhya Pradesh recorded a marginal increase of less than 5 percentage points. Notably, Uttarakhand and Kerala exhibited a decline in anaemia prevalence during the study period. Additionally, the number of states with anaemia prevalence exceeding 60%, doubled from 5 in 2015-16 to 11 in 2019-21. Several factors were found associated with anaemia, including having more than one child (AOR: 1.33, 99% CI: 1.16-1.51), having no education (AOR: 1.25,

99% CI: 1.16-1.34), belonging to Scheduled Tribes (AOR: 1.47, 99% CI: 1.40-1.53), being in the lowest wealth quintile (AOR: 1.17, 99% CI: 1.12-1.23), year of survey (AOR: 1.26, 99% CI: 1.23-1.29), and being underweight (AOR: 1.10, 99% CI: 1.07-1.12). Conclusion: In conclusion, the rise in anaemia prevalence among adolescent girls in India suggests the need for targeted interventions to mitigate the burden of anaemia and enhance the overall health of this population.

Impact of Conditional Cash Transfers on Continuum of Care for Maternal and Child Health: An Analysis of a Recent National Maternity Benefit Scheme

Miss. Bhawna Taneja and Dr. Indrani Roy Chowdhury

Maternal and child health plays an essential role in the development of a country. Despite some progress in the last two decades, India still has one of the highest maternal and child death rates. The majority of these deaths are preventable if good quality healthcare services are provided on time. The experience of the developing countries shows that traditional methods of focusing on supply-side policies to ensure availability and outreach to the lower socio-economic sections are insufficient. Such issues can be addressed by incentivizing the demand of the targeted population using financial interventions and enabling policies. One crucial policy instrument under the demand-side financing scheme is Conditional Cash Transfer (CCT) which provides cash transfers only if certain conditions are met. In India, most studies have focused on individual healthcare utilization, and little is said about the impact of CCTs on the continuum of care (CoC). In addition, most results are drawn from one CCT scheme, i.e., Janani Suraksha Yojana. Therefore, this study looks at the impact of a recent national maternity benefit scheme, Pradhan Mantri Matru Vandana Yojana, which provides sequential cash transfers in three installments on fulfillment of certain conditions. We use difference-in-difference (DID) analysis to evaluate the impact of the scheme on CoC for maternal and child health and health outcomes using two rounds of the National Family and Health Survey. The results show that the program has increased the utilization of complete antenatal care by two percentage points. It also has a significant impact on postnatal checkups for the newborn. Furthermore, the probability of utilization of all the services (excluding child immunization) increases by 4.4 percentage points. The results also show that there is a significant reduction in the prevalence of wasting (low weight-for-height) but an insignificant effect on other health outcomes.

Does The Use of Sterilization More Equitable Than Modern Spacing Methods of Contraception Across Social and Economic Factors in India and Its Regions?

Mr. Sanjay Kumar Pal and Prof Chander Shekhar

Disparities in the knowledge of, and access to, contraception are barriers to fulfilling unmet contraceptive needs and inequalities throughout the world. Within the country, increases in the uptake of contraception are not always equally distributed and supported by fundamental cause theory, which suggests that individuals with more resources utilize medical interventions more rapidly. Discrepancies in healthcare utilization between groups within a country could reflect inequity in access and uptake, with inequity defined as an inherently unjust inequality. The study examines the trends in equity in sterilization and modern spacing methods across residence, social and economic factors in India and its regions. The first to fifth round of National Family Health Survey (NFHS) data has been used for the analysis. In order to analyse equity, people were ranked according to their wealth quintile, stratified by residence and caste and religion, and the concentration index, as a statistic incorporating data from all wealth quintiles to analyse inequity. Results show that the use of modern methods among currently married women significantly increases from 36% to 56%. Among this prevalence of sterilization and modern spacing, methods change from about 31 to 38% and 5.5 to 17%, respectively, over almost three decades. Furthermore, results suggest that equity in sterilization and modern contraceptive prevalence rates rose from 0.041 to 0.004 and 0.164 to 0.098 across the country's regions during the study period.

Mainly, in the recent round of NFHS south region had the highest (about 60%) proportion of sterilization, and for the spacing methods, the northeast region had the highest (33%) proportion of spacing methods with a concentration index of -0.029 and -0.013, respectively, became the most equitable region of the nation. The study suggests that when a country seeks to increase the use of modern methods, it should provide top priority equity in access to services and contraceptive use.

Exploring the Nexus of Caste and Multidimensional Poverty in India's Elderly Population

Mr. Binayak Kandapan and Prof Jalandhar Pradhan

The caste system, deeply ingrained in India, has profoundly influenced various aspects of society. Historically, it has compelled individuals from some specific communities to endure discrimination, resulting in their marginalization. Using the Alkire-Foster method, this study delves into the impact of caste on multidimensional poverty among the elderly in India. This analysis draws from Longitudinal Ageing Study in India, 2017-18. Multiple logistic regression model was fitted to identify the associated factors. The construction of elderly multidimensional poverty index (MPI) includes 21 indicators across six dimensions of well-being. The findings underscore that caste strongly affects poverty levels among the elderly, with Scheduled Castes (SCs) having the highest incidence and intensity, followed by Scheduled Tribes (STs). This contrasts with previous studies on the entire population and the children. The contribution of SCs to the national MPI is larger than its population share. Economic security, functional ability and psychological well-being dimensions contribute the most, contributing about two-thirds to the MPI for all castes. Among the indicators, depressive symptoms, employment or pension, literacy and executive functioning, and health insurance contribute the most. Elderly individuals who were 75+, women, unmarried, rural residents, and living alone or with only one co-resident face a higher risk of experiencing multidimensional poverty. There is a noticeable caste differential in the determining factors of the elderly MPI.

Trend And Analysis of Cause Specific Mortality in India: A Join Point Regression Approach

Mr. Sourav Padhee and Diptismita Jena

Background: The development of different methods to improve healthcare and lower mortality depends on a population's epidemiological profile of mortality. By evaluating these trends and patterns, we can able to get a better representation and understanding of how cause-specific death rates are evolving. Objective: To evaluate the mortality trend of different diseases in India by applying join point regression. The current study primarily focused on the changes in different cause-specific mortality in India from 1990 to 2019. The population was obtained from the Medical Certification of Cause of Death (MCCD) Reports 2020, India. Results: The Annual Percentage Change (APC) death of circulatory diseases was observed significantly high in 2002 i.e., 3.74. The APC death of respiratory diseases was high in 2003 i.e., 5.46 and the APC death of Neoplasms was significantly high in 2004 i.e., 4. The APC death of Infectious Parasitic, Certain Conditions Originating in Perinatal Period, Injury Poisoning & Certain Other Consequences of External Causes, the slope of the estimated mortality rate decreases at a particular time. Conclusion: The APC death in Circulatory diseases, respiratory diseases, and Neoplasms, the slope increases at a particular time which indicated that the mortality rate is increasing over the period which can be used by the policymakers to take action against all the existing medical interventions in order to improve the health care condition.

Does The Wage Compensation Scheme in Assam Improve the Maternal Health-Seeking Behaviour?

Miss. Pallabi Gogoi and Dr. Indrani Roy Chowdhury

In recent years, there have been tremendous efforts across the globe to combat the maternal and child health (MCH) related issues. Most of the maternal and child deaths could have been avoided if there was uptake of MCH services. The utilization of MCH services has been consistently low especially in the low- and middle-income countries which bear the highest burden of such deaths. Several studies demonstrated that economically weaker section of the society often characterized with demand deficiency in MCH service utilization. In light of that countries across the world have been implementing various instruments particularly the conditional cash transfers (CCT) to increase the uptake of MCH services among the targeted population. Assam, a north eastern state of India, has been consistently facing higher maternal and child death rates in the recent years. In line with the Union and a few State Governments, the Government of Assam has introduced a CCT program Wage Compensation Scheme for Pregnant Women of Tea Garden Areas of Assam (WCS) in 2018 to increase uptake of MCH service in the tea-garden areas. The present study aims at providing an understanding of the impact of WCS program on the up taking of various maternal health-care services using propensity score matching, and the findings could be of policy interest specifically for the low-performing states in India like Assam. The study is based on a primary survey conducted in two tea garden concentrated districts of Assam with a sample size of 501. The results reveal a positive and significant impact of the WCS program for all the selected outcome variables considered in the study such as ANC visits, institutional delivery, SBA and PNC visits which suggest the conditionalities for scheme benefits may be working well for pushing the beneficiaries to uptake the various maternal health-seeking behaviour.

Changing Anthropometric Status Among 15-19 Years Old Female Adolescents in India Between 2005-06 And 2019-21: With A Special Reference to Tribal Population

Miss. Bezawada Meghana and Dr. Angan Sengupta

Background: This study examines the changes in nutritional status among 15-19-year-old female adolescents in India analyzing NFHS-3 (2005-06) and NFHS-5 (2019-21) data. Data: There were 24811 females aged 15-19 years surveyed during NFHS-3, among which the tribal sample size was 2117. A sample of 122544 females (15-19 years) and 11691 tribal population from same age group has been analyzed from NFHS-5 data. Results: The percentage of underweight adolescents have decreased from 45.5% to 38.9%, while the prevalence of overweight and obesity increased from 5.7% to 9% and 0.8% to 2.7% respectively, during NFHS-3 and NFHS-5. During the same period among tribal population the percentage of underweight drops by five percentage points from 46.1%, while overweight prevalence nearly doubled and obesity increased massively from 0.1% to 1.4%. Proportion of underweight among adolescents have declined narrowly across all socio-economic categories. However, overweight and obesity increased at a rapid rate. The rise is significantly higher among rural communities, poorer sections, people with low education and Muslims. Obesity has increased by seven times among the tribal adolescents. With respect to the tribal population, the obesity and overweight combinedly increases by 116% from 2005-06 to 2019-21 while the reduction in underweight percentage is only by 10.6%. Poorest among them has seen 168.5 % rise in obesity and overweight but prevalence of underweight reduces just by 9.8%. Conclusion: Results show that undernutrition is still highly prevalent among Indian female adolescents. However, the prevalence of overweight and obesity has been increasing rapidly during last couple of decades. An analysis on scheduled tribe population shows that the impact of nutrition transition is evident among the socio-economically underprivileged and remotely living tribal population as well.

Assessing the Urbanisation Aspects and its Linkage between the Dynamics of Economic Development in West Bengal, India

Mr. Samrat Sarkar and Dr. Reshmi R.S.

This paper aims to analyse urbanisation trends and understand the relationship between urbanisation levels and relevant economic development indicators in West Bengal. The study evaluates the association between urbanisation and key developmental aspects, including state gross domestic product (SGDP), migration, and industrialization. District-level data on urban population and migration were obtained from the census of India, while secondary sources provided statistics on developmental elements from publications by the Ministry of MSME, Government of India, and the Department of Statistics and Programme Implementation, Government of West Bengal. Various urbanisation indicators, such as Level of Urbanisation, Urban-Rural Ratio, and Tempo of Urbanisation, were examined to assess the urbanisation situation in West Bengal (WB). Employing a multiple correlation model, the study established a relationship between urbanisation and economic progress. Results indicated Haora had the highest urbanisation rate of approximately 13 per cent, while Uttar Dinajpur experienced a negative urbanisation rate of -0.13 per cent from 2001 to 2011. Furthermore, the study revealed a positive correlation between urbanization, GDP, and the number of MSMEs, while a weaker positive link was observed between urban population percentage and in-migration. By enhancing our understanding of how urbanization influences economic development, this research aims to evaluate West Bengal's progress towards the sustainable development goal of promoting decent work and inclusive economic growth.

Understanding delays in Initiation of Tuberculosis Treatment among Migrant Population: A Cross-Sectional Study in Bihar, India

Miss. Menka Singh, Dr. Rajiv Ranjan, Dr. Rehana Begum, Dr. Atreyee Sinha, Mr. Arin Kar, Shramana Majumder, Dr. Joseph Francis Munjattu, Ms. Amrita Goswami, Dr. Reuben Swamickan and Dr. Karthikeyan Kumaraswamy

Background and Objectives: With 2.9 million cases each year, India has the world's highest incidence of tuberculosis (TB) and accounts for 28% of the global tuberculosis burden and 36% of such deaths. Despite a brief decline in TB notifications observed in 2020 and 2021 in India, owing to the COVID-19 pandemic, the NTEP rebounded to pre-pandemic levels with a record-high notification of 2.42 million TB patients in 2022, an increase of 13% as compared to 2021. Migrant populations, who often face challenges and lack support systems, are particularly vulnerable to TB. This study aims to assess treatment-seeking behaviour for TB among migrants and its correlates. Data and Method: A cross-sectional study was conducted under the USAID supported Breaking the Barriers project being implemented by Karnataka Health Promotion Trust (KHPT), involving 319 persons with TB from migrant families in Purnia and West Champaran districts, Bihar. The study examined socio-economic conditions, out-of-pocket expenditure, time to treatment seeking, number of visits made, and experiences of stigma. Bivariate and multivariate analyses were performed. Results: Overall, an average delay of 39 days [CI:35-43] was observed, much higher for females 46 days [CI: 39-54] than males. Mean days of person delay was 8 days [CI:6-9]. Almost half of the respondents did not take timely consultation/treatment. Socio-economic factors, comprehensive knowledge about TB, and perceived stigma, were significant correlates for delayed treatment initiation. Conclusion Delayed treatment emerged as an issue among migrants. Comprehensive knowledge about TB, and socio-economic factors appeared as roadblocks for timely initiation of treatment. Perceived stigma, plays a significant role delaying treatment initiation. These findings highlight the importance of implementing TB screening, prevention, and awareness programs, as well as addressing stigma to effectively combat TB among migrants' population.

Impact of Demographic and Socioeconomic factors associated with Low Parity of Women in Sikkim

Mr. Vishal and Dr. Vishal Deo

According to Census 2011, the overall literacy rate for females in India is 64.63% whereas the literacy rate of Sikkim stands at 76.43% among females. Also, the proportion of working population among women in Sikkim is very high as compared to the National Average. The NHS wales data dictionary defines parity as the number of times a woman has given birth to a live neonate or at 24 weeks or more, regardless of whether the child was viable or non-viable. As per the NFHS-5 report, total fertility rate in Sikkim is estimated at 1.1, much lower than the national estimate of 2. The survey further reports that two third of currently married women and three fifth of men aged 15-49 years want no more children, are already sterilized, or have a spouse who is sterilized. Enhanced access to education, healthcare, and family planning may prompt women to opt for fewer children, likely influencing parity in Sikkim. Declining birth rates in regions like Sikkim risk an imbalanced population, causing workforce shortages, economic strain, and social challenges, exacerbated by gender biases, necessitating adept leadership and planning. Data and methodology- This study uses data from the 5th round of the National Family and Health Survey. Univariate analysis and exploratory data analysis using cross tabulations is done. In addition, parametric tests for association and ordinal regression analysis were used to model the relationship between various study variables. Data was analysed using STATA software. Findings The NFHS-5 dataset highlights the problem of low parity and low intent for bearing children among households in Sikkim. A possible role of individual-level demographic and socioeconomic factors in the current trend of parity in Sikkim was further investigated further through statistical modelling.

Teenage Pregnancy and High Unmet Need for Family Planning among Currently Married Adolescents in India

Ms. Purva Bhalla

Introduction: Teenage Pregnancy is a crucial issue to acknowledge. Recently, teenage pregnancy or motherhood has been a significant cause of concern. Aim: The present study is to understand the trends of Teenage Pregnancy with state-wise variation, assess the prevalence of contraceptive usage and factors associated, identify the socioeconomic factors affecting early pregnancy and explore the socioeconomic factors influencing the unmet need for family planning with state-wise variation. Data: The univariate, bivariate and multivariate analysis is used to examine the prevalence of contraceptive use and unmet need among currently married adolescents. Data for this analysis is drawn from NFHS-5. Spatial patterns in teenage pregnancy and the unmet need for family planning in India (2015-16 & 2019-21) have been analyzed using the Arc-View software. Result: The study estimates a teenage pregnancy rate of 6.8 percent. This study shows that among currently married adolescent girls, 53 percent have experienced teenage pregnancy. It is interesting to see that currently married teenagers, who experienced teenage pregnancy, the majority (92.5%) of the adolescent had an unmet need for family planning services. Unmet Need and Teenage Pregnancy go hand in hand. The study has revealed that there is a significant association between teenage pregnancy and variables like biosocial factor which explains R^2 as 60.5 percent variability, fertility factor explains R^2 as 62.5 percent variability, women agency link explains R^2 as 76.4 percent variability and overall factor explains R^2 as 80.1 percent variability of currently married adolescent girls experiencing teenage pregnancy. Conclusion and Recommendations: Teenage pregnancy continues to be the major cause of concern. It is very crucial to improve the quality of counselling at the grassroots level like at the educational level as in schools by teachers, school counselors, peer educators in community, in colleges which will protect teenagers in early marriage and teenage pregnancy.

Early Development of Multifaceted Policies and Programmes for Increasing Elderly Population in Himachal Pradesh

Miss. Yukta Tomar and Dr. Shashi Punam

India, today stands as the youngest nation as it has the largest portion of youth population in the world whereas in coming decades this young nation will go through a transitional phase from young to old as the rapid aging will take place. The aging of the population will pose the crucial challenge that will demand the development of comprehensive policies to address the specific needs of the increasing old age population. It is expected that, by 2050, the population of the elderly (60 years and above) will rise form 8.6% estimated in 2011 to 20% of the total population of India, which signifies a considerable rise in the numbers of the old age. Himachal Pradesh, one the of the most important hill states of India, has also seen a rapid change in its demographic structure as it has the 10.2% average elderly population of its total population, which is higher than the national average of 8.6% (Census 2011). Thus, this increasing population stands in the need for the efficient multifaceted approach and policies to ensure that all necessary requirements of this growing population are fulfilled. The present study put emphasis on to see the changing demographic trends in the increase of elderly population in India as well as Himachal Pradesh, to see the relationship between increasing population and how it leads to several socio-economic problems for the elderly and to give suggestive solutions to deal with the problems faced by the elderly as their population increases.

A Study on IFA Tablet Compliance Among Indian Women Based on NFHS-5 Data

Miss. Meghna Prakash, Dr. Angan Sengupta and Dr. Tina Dutta

Prevalence of anemia has remained very high among Indian women. The objective of this study is to understand the gap in IFA consumption across different socio-economic and public health parameters. This study analyzes NFHS-5 data (2019-21), with a sample size of 151171 women, who bought or received IFA tablets during pregnancy. The chance of not taking at least 100 and at least 180 tablets are lesser by 21% and 16% respectively for urban with respect to rural women. Age is not a significant parameter, while wealth index exhibited a significant impact. When compared to the richest, the poorest face nearly 1.8 times higher odds for not consuming at least 100 IFA tablets, and nearly 2.2 times higher in case of not consuming at least 180 IFA tablets. The education level of women was found to have a significant impact on the consumption. The chances of scheduled tribes not consuming at least 100 IFA and 180 IFA tablets were around 26% lesser with reference to general castes. However, those belonging to scheduled caste do not show any significant difference. Hindus have significantly much lesser chance to not consume both 100 IFA (OR= 0.574) and 180 IFA tablets (0.678). Those who have received at least four Antenatal Care check-up are twice more likely to not consume tablets. Women with non-compliance to enough IFA tablets were found to be more anemic compared to their counterparts. Public health policies should focus on non-compliance to consumption of Iron and folic acid tablets.

Socioeconomic Challenges and Strategies for Intangible Cultural Heritage Chhau Dance Musicians and Instrument Makers in Purulia District, W.B, India

Mr. Rajnarayan Podder, Rabindranath Kumar and Sudip Bhui

The Chhau dance is a traditional folk dance that is characterized by the use of masks, music, and intricate body movements. It is predominantly practiced by marginalized communities residing in the eastern region of India and is considered to be an intangible cultural legacy of the area. To enhance the allure of the Chhau dance, a variety of musical instruments are required to perform it. Some individuals from the various communities of the Purulia district create the Chhau dance's musical instrument from

generation to generation. Examining the socioeconomic situation of musical instrument producers and musicians is crucial due to their significant contribution to the Chhau dance. Primary and secondary data have both been used in this study to uncover the true issues facing musicians and instrument makers. The survey has done in the Purulia district, gathering information on the socioeconomic position of both makers and musicians. Despite their low socioeconomic status, they should be recognized for their connection to traditional dance. The instrument makers and musicians involved in the Chhau dance exhibit lower levels of education face economic hardships and experience employment insecurity. Consequently, it is imperative to implement comprehensive strategies that encompass careful planning, enough assistance, and targeted training to address these challenges.

Prevalence of Teenage Pregnancy and Motherhood in India and East Indian States

Mr. Manotosh Gayen

Teenage pregnancy is a growing concern all over the world. In developed countries, most teenage pregnancies happen to unmarried girls, in contrast to developing countries like India, where teenage pregnancies happen to married girls and are linked to early marriages. Within India, a diverse scenario has been observed; eastern Indian states have witnessed teenage pregnancy at an alarming rate. The study tries to explore the levels, trends, and patterns of teenage childbearing in East Indian states since the NFHS-3 2005-06. It highlights the childbearing patterns by background characteristics and the factors affecting teenage childbearing in the region in NFHS-5 (2019-2021). The reports and unit-level data of NFHS-3, 4 and 5 have been consulted for the study. The aggregate data sets are represented through cross-tabulation with percentage and cartographic techniques. The unit-level data sets of the NFHS are used for hypothesis testing, which is tested through the independent-samples t-test and one-way ANOVA. The study reveals that teenage childbearing is highly predominated among illiterate and less educated women in the eastern Indian states. Most of the teenage mothers are from poor families (79%). They belong to backward communities, such as OBC (43%) and SC (28%). Teenage pregnancy is higher among Hindus (80%) than in other religious communities. Rural areas (91%) of Eastern Indian states have witnessed more teenage pregnancy cases than urban. The region has a significant association between mass media exposure (mobile phones and watching television) and teenage pregnancy. There is a wide unmet need for family planning (50%), especially for contraceptive use (30%) in the context of teenage pregnancy. Higher education for women, improvement of socioeconomic status and proper knowledge and uptake of family planning programmes are important aspects for policy intervention in the Easter Indian states.

Incidence, Depth and Severity of Child Malnutrition among Different Social Groups in West Bengal: An Empirical Analysis Based on NFHS-2 to NFHS-5

Eva Ghosh and Sushil Kr. Haldar

Child malnutrition has been a crucial public health concern in India because India after 2025 will start enjoying the benefits of demographic dividend. Poor health is a major constraint to accumulate human capital, therefore, healthy children is the pre-condition for enjoying the benefits of demographic dividend. West Bengal is one of the states in India where the wideness of anthropometric failure has remained high as per NFHS-5 Fact Sheet. An attempt has been made here to examine community specific child malnutrition and to explore the depth as well as severity of malnutrition across different social groups in West Bengal using four rounds of NFHS (2, 3, 4 and 5) Data. It has been observed that the prevalence of underweight among children in West Bengal is quite low compared to the national average during NFHS-2 and NFHS-3 but it deteriorates from NFHS-4 to NFHS-5.The results of Foster-Greer-Thorbecke measure shows that the incidence, depth and severity of stunted children increases from NFHS-4 to NFHS-5 as a whole in West Bengal whereas percentages of Underweight children decreases slightly over the year starting from NFHS-2 to NFHS-5; the prevalence of wasted children increases to a large extent from NFHS-2 to NFHS-4 after which it decreases fractionally in

NFHS-5.The in-depth analysis suggest that in NFHS-5, the incidence, depth as well as severity of malnourished children are found to be high among the Scheduled Tribe (ST) category compared to other three social groups like Scheduled Caste(SC), Other Backward Community (OBC) and General (G). The same analysis has been done for all the NFHS Rounds. The State Government should give more emphasis to the vulnerable group like ST community in order to ensure health equity and social justice. We suggest to strengthen our existing NRHM programme to ensure health for all programme.

Subnational Variations in Life Expectancy at Birth in India: Evidence from NFHS and SRS Data

Mr. Pawan Kumar Yadav and Dr. Suryakant Yadav

Background: Measuring life expectancy can assist in comprehending how the COVID-19 pandemic has affected the mortality estimates in the Indian population. The present study aims to study the life expectancy at birth at the national and subnational levels before and during the COVID-19 pandemic using the NFHS and SRS data. Methods: Life expectancy at birth (e_0) was computed for the non-pandemic and pandemic years from NFHS (2015-16), SRS (2015) and NFHS (2019-21), SRS (2020) respectively at the national and Subnational level in India. Using NFHS data for the 36 states and SRS data for the 22 states, the study calculates e_0 by total, male and female population. Results: The e_0 for male and female decline from 64.3 years and 69.2 years in 2015-16 to 62.9 years and 68.9 years in 2019-21. The e_0 shows a drop of approximately 1.4 years for males and 0.3 years for females in the pandemic year 2019-21 when compared to the non-pandemic year 2015-16. At the subnational level e_0 shows a decline for 22 states in person, 23 states in males and 21 states in females in the pandemic year 2019-21 as compared to the non-pandemic years 2015-16. The findings show significant losses in e_0 for males than females in the pandemic year as compared to the non-pandemic year at the subnational level in India. Conclusions: COVID-19 pandemic has decreased e_0 in the pandemic year 2019-21 at the national and subnational level in India. COVID-19 had a significant impact on the age pattern of mortality for many states and male, female population and delayed the mortality transition in India.

On the Measurement of Son Preference in Quantitative Terms

Mahima and Abhay Kumar Tiwari

A large number of studies have been done to estimate Parity Progression Ratios (PPR) and Instantaneous Parity Progression Ratios (IPPR) (Srinivasan, 1968; Yadava and Bhattacharya, 1985; Blacker et al., 1989; Yadava and Saxena, 1989; Yadava et al., 1992; Yadava, 2018; Yadava, 2022, etc.). However, the PPR and IPPR values have been computed for specific parities , i = 1, 2, 3,... without considering the sex compositions of born children stopping at specific parity i. However, it is a known fact that a couple's decision to stop bearing children is not only dependent on parity 'i' but also on the sex composition of the born children. Shukla et al. (2018) have made an attempt to inquire whether the stopping of bearing children at parity is dependent upon the sex composition of born children and after analysing the data of NFHS-2 and NFHS-3, they have concluded that there is an indication of son preference for females stopping at two and three children. However, they have not given any methodology to measure the preference for different sex compositions of children qualitatively. The objective of the present article is to propose a methodology to measure the son preference or preference for specific sex composition(s) of children in quantitative terms. The validity of the proposed methodology has been checked by considering some hypothetical examples. The methodology has also been utilised to measure the magnitude of preferences for different sex compositions using NFHS data.

Spatial Variations in Health Infrastructure in selected blocks of Murshidabad District in West Bengal, India

Mr. Manab Ghosh

Spatial variation in health infrastructure refers to differences in the availability and quality of health facilities, services, and resources across regions. This variation can create a significant impact on health outcomes, particularly in areas with limited access to health care. This study is focused on the spatial variations in health infrastructure in selected blocks in Murshidabad district, West Bengal. Twelve indicators of physical infrastructure services have been considered for constructing the healthcare infrastructure index in this study. These are grouped into the following two categories under different heads: I. Availability of health care facilities II. Performance of public health care. A statistical technique like dimension index has been used to standardize all variables. Kendall's coefficient of concordance (W) has been used to determine the degree of association among the several variables (K) of ten blocks (N) in the selected study area. After a detailed analysis of the aforesaid indicators, healthcare infrastructure indexes (HII) for each community development block have been worked out to perceive the status of healthcare facilities in this study. This study has found the inequality in the development of the health infrastructure in the study areas and the insufficiency in the balanced growth of health infrastructure with population growth.

Influence of design effect and intra-class correlation of selected common indicator between National Family Health Survey (NFHS) and Longitudinal Ageing Study India (LASI)

Mr. Somnath Jana

Background: DHS surveys utilise discrete sampling zones with a similar design to the full sample, resulting in regional design effects comparable to total sample design effects. Sampling errors are inversely related to sample size or area size. It's difficult to say whether the estimate is more accurate. Still, the research seeks to explain why estimates differ in surveys by looking at the design for potential sampling and non-sampling errors. Hypertension is one of the major public health concerns in India, with high adult prevalence rates. Large-scale surveys such as the National Family Health Survey (NFHS-5) and LASI wave 1 provide valuable data on hypertension state levels. Objective: This study seeks to explain if there is a substantial variation in estimate owing to two alternative stratification structures for survey design and to emphasise the loss in precision and the net gain in the intra-class correlation between the two studies. Methods: Two methods for estimating standard errors were tested. Bootstrap variance for the ratio approach of simple random sample estimation and design-based asymptotic variances for multilevel structure. Also, we estimate the design effect and gain in precision to compare two different multilevel studies. Results: The ICC values for the indicator varied from 0.03 to 0.20 in most states. Larger states such as Gujarat, Madhya Pradesh, Uttar Pradesh, and Maharashtra had greater ICCs in the prevalence of hypertension in rural regions for both NFHS and LASI. The study found that the design effect for both NFHS and LASI varied between 1.5 to 2.5. Conclusion: In estimating indicators with varied stratification structures, LASI design generates higher accuracy loss than NFHS design. Proper stratification is vital in survey design to minimize bias induced by the selection process. PSU size stratification should be carefully considered in two-stage sample designs, especially in India, where PSU size is highly connected to demographic factors.

Functional health of elderly grandparents in India: a comparative study of Skipped-Generation and Multi-Generational Households amidst varying intensities, reason, and working status for Caregiving

Mr. Papai Barman and Dr. Harihar Sahoo

This study investigates the association between grandparent caregiving and functional health in India, focusing on individuals aged 60 and above in both SGH and MGH settings. Using both secondary data

from the Longitudinal Aging Study in India (2017-18) and primary in-depth interviews, the study examines functional health in SGH and MGH and the moderating role of caregiving hours, reason behind grandchild caring, and working status. Caring hours were measured by weekly time grandparents spent with grandchildren; reason behind grandchild caring were categorized as compulsive or non-compulsive, and working status as never worked, previously worked, or currently working. Functional health was measured using Mobility (ML), Activities of Daily Living (ADL), Instrumental Activities of Daily Living (IADL), and Rheumatoid Arthritis (RA). SGH was defined as the nuclear household where grandparents and grandchildren live together without present of middle generation, and MGH as the joint household where more than two generations cohabitating altogether. Bivariate, logistic regression, interaction effect, and partial least square structural equation modelling were employed. Findings indicated that grandparents in SGH had higher functional limitations, as evidenced by 81.3%, 35.3%, 50.5%, and 82.8% in ML, ADL, IADL, and RA respectively. In contrast, those in MGH settings recorded 72.1% for ML, 17.5% for ADL, 42.2% for IADL, and 71.2% for RA. In-depth interviews echoed these findings. Notably, regression analyses revealed increased odds of functional limitations for grandparents in SGH compared to MGH. As an illustration, grandparents in SGH had a 1.20 times greater likelihood (OR: 1.20, CI: 1.12-1.45) of experiencing ML compared to their counterparts in MGH. Furthermore, caregiving hours, reasons for grandchild care, and employment status emerged as significant moderators. To achieve Sustainable Development Goal 3 and encourage healthy aging, interventions tailored to the unique challenges faced by caregiving grandparents in both household settings are imperative.

Count Data Modelling of Child Ever Born among Indian Women: An application of COM-Poisson Regression Model

Miss. Diptismita Jena, Manas Ranjan Tripathy, Pravat Kumar Sarangi and Khusi Agrawal

The number of children ever born is a valuable indicator for understanding the fertility scenario of a country. This study aimed at modelling total children ever born using a best fitted count regression model. The NFHS-5 data of women within the age of 15-49 years were accessed and used for the modelling purpose. Four count regression models i.e., Poisson, Negative binomial, Generalize Poisson, and Conway's Maxwell Poisson (COM-Poisson), were compared based on their model selection criteria, the COM-Poisson model was found to be superior. The results of the study showed that the age of household head, age of respondent at the time of first birth, urban-rural status, and religion were all significantly associated with the total number of children ever born. This suggests that these factors play an important role in determining the fertility behavior of women in India. The study concluded that early marriage, religious belief, and unawareness of women who dwell in rural areas should be checked to control the total number of children ever born in India. These factors can be addressed through policies and programs that promote delayed marriage, improve access to family planning services, and raise awareness of the importance of family planning among women in rural areas.

Effect of NIL/Low Salt Food Preparation Demonstration on Salt Intake and Blood Pressure among Patients with Hypertension in Puducherry: A Pilot Parallel Arm Non-Randomised Control Trial Study

Dr. Shefali Gupta, Dr. Swaroop Kumar Sahu, Dr. Arivarasan B and Dr. Sharbari Basu

Background: Dietary salt consumption is one of the significant causal factors of blood pressure and overall cardiovascular risk. The study aimed to assess the effectiveness of food preparation demonstrations in lowering the blood pressure of patients with hypertension by cutting down the salt usage in their daily diet. Methods: Patients with hypertension (aged 30 -59 years) availing services from selected primary health centre, Puducherry, South India, were recruited. The intervention group received a food preparation demonstration and routine health education, while the control group received only routine health education. Results: Out of 130 patients enrolled, 101 patients completed the three months of intervention. There was a significant reduction in systolic blood pressure by 2.3

mmHg, diastolic blood pressure by 2.4 mmHg and monthly salt consumption by the family by 111.5 gm in the intervention group as compared to the control group. Conclusion: There was a decrease in blood pressure and salt consumption both at the individual and family level following routine health education sessions and routine health education supplemented by a food preparation demonstration. However, there was no statistically significant difference between the intervention and control groups for all these outcome parameters across the intervention and control groups. The study did not have enough power to conclude that adding food preparation demonstration to routine health education has no added advantage as compared to imparting just routine health education. Trial registration: Indian Clinical Trials Registry number CTRI/2021/08/035481.

Morbidities and Perceived Health Status among Elderly in Odisha: Evidences from 75th Round of NSSO Data

Dr. Amit Kumar Sahoo, Kirtti Ranjan and Paltasingh

This study looks at the prevalence rate and pattern of morbidities among senior citizens in Odisha. The study employs a logit regression model to identify the factors that influence participants' perceptions of their health. Regardless of where they live or their gender, it is discovered that diabetes, musculoskeletal disorders, and hypertension/heart diseases are the main illnesses they experience. Males and females in rural settings experience similar rates of disease prevalence. But there is a gender gap in disease prevalence in urban areas, where females are more likely to experience musculoskeletal problems, whereas hypertension/heart disease, and diabetes are two major diseases affecting male elderly people. It also reveals that the main variables affecting the elderly's perceived health status are their marital status, education, caste, gender, chronic illness, living situation, and level of economic independence.

Exhibiting the Changes in Nutritional Status of Children in India: An Empirical Insight from Human Opportunity Index

Dr. Debi Prasad Bal and Balakrushna Padhi

This study analyses the temporal change in the under-nutritional outcomes for children below five years of age at national and sub-national levels using three rounds of NFHS datasets. We have used stunting (low height-for-age), underweight (low weight-for-age), and wasting (low weight-for-height) as indicators of undernutrition. Here, we have used the Human Opportunity Index (HOI), D-index, and its Shapley decomposition and time decomposition. This study found that the HOI has improved in all three opportunities (normal height-for-age, normal weight-for-age, and normal weight-for-height) from 2005-06 to 2019-21 at both national and sub-national levels. The overall inequality is also found to decline over the same period in all the opportunities, which is encouraging. Analysis of Shapley's decomposition reveals a low but rising share of social groups and religions. The major contributors to inequality are wealth, mother's education, electricity, and toilet. At the sub-national level also, we observe a similar pattern. At the national level, the increase in HOI for normal height-for-age and normal weight-for-age was largely due to the composition and coverage effect, whereas for the normal weight-for-height, the increase was only due to the composition and equalization effect. The study finds that India, at the national level, has managed to consistently reduce the level of inequality but is lagging in terms of coverage rate (WHO standards). This is evident from the almost similar heat map for coverage rate and HOI. Therefore, Indian policymakers should increase the budget size to widen the coverage rate while continuing to lower inequality even further.

Identifying the barriers among tribal women in availing Pre & Post-natal care services in Majuli Island, Assam

Aradhana Singh

This paper explores the barriers in accessing modern maternal care practices among tribal women of Majuli Island. The study is based on the primary survey conducted in March (2021) among tribal women of Majuli through in-depth interviews using open-ended questions. Also, the in-depth interview of health care providers was done to understand the demand-supply balance of maternal care services in Majuli. In total, 80 tribal women and 20 healthcare providers were interviewed to fulfil the objectives of this study. Thematic analysis was used to analyze the in-depth interview data collected from tribal women selected under the sampling design. The results show that from the health seeker's perspectives, financial condition, traditional and cultural beliefs, lack of knowledge, son preference, poor infrastructure, frequent floods and the pandemic (Covid-19) were the significant barriers in accessing maternal care while in health care provider's perspectives, it was overburdening of health facilities, accessibility, non-availability of female doctors. The present study highlights that apart from socioeconomic status, several other factors are associated with each woman in determining their maternal care practices. In conclusion, it can be summarised that despite several efforts from the state, the tribal women inhibiting Majuli are still lagging in taking all the prescribed maternal care and delivering in health facilities because of several barriers. Although ASHA works relentlessly in Majuli, they cannot completely convince the women to do all necessary checkups. In particular, full ANC requires four antenatal care visits, which most women fail to do. Most of them either get discouraged by family or their economic condition to not go to the hospital for several rounds of checkups during pregnancy.

Sustainable Energy for Universal Health Coverage: A pilot study on the North Karnataka District

Mr. Veeresh Tadahal, Dr Rinshu Dwivedi and Dr Ramesh Athe

The Primary-Health-Centers (PHCs) are considered as backbone rural-healthcare in India. They are first point of contact/referral for the rural-population in case of health-emergency for availing healthcare. The motivation behind the study is to bring out the aspect of energy access and its reliability at a public healthcare facility focusing on the rural health settings. The energy-health-integration is not captured when it comes to healthcare infrastructure facility particularly focusing on rural health settings with reference to pandemic and climate change that sternly affected health-sector. Present study makes at attempt to assess the realized impact of solar electrification on the rural-healthcare focusing on PHC's in terms of accessibility and reliability. Also, it aims to focus on the Sustainable-Development Goals' convergence to achieve Universal-Health-Care with SDG 7 acting as a catalyst for SDG 3 to achieve SDG 13. Data is drawn from pilot study through mixed-method-approaches where primary-data is collected from rural PHCs of Dharwad District, Karnataka to assess the impact of solar power on healthcare infrastructure and level-of-care after the systematic literature review searches which has been used to explore the existing-gaps and policy-implication from a bottom-up-approach. Later, the qualitative approach thorough in-depth interviews were applied. The coverage of the services was assessed in terms of immunization for newborns, vaccinations, OT's for child-birth and post operational lifesaving-devices like baby-warmers, oxygen-concentrators, hot-water facility for pregnant women during and post-natal, sterilization of medical equipment's, basic-lighting, fans, communication-device and other life critical loads for achieving UHC. The expected outcome of the study is to realize the impact of solar electrification and its cost implications compared to conventional sources of energy through broader policy implications to make the rural health system more resilient to climate change and future pandemics with adoptive and mitigative measures with sustainable energy being catalyst for achieving broader universal healthcare to all.

Relevance of multidimensional poverty estimate in India

Miss. Jyoti Das and Sanjay K Mohanty

Introduction: Poverty measures compare people in a society in order to assess the extent of unacceptable disadvantages that exist. The poverty measures primarily affected from two factors: data limitations and the diversity of human lives being assessed. Internationally comparable measures face a greater challenge on both counts: the pool of comparable data is narrower, and diversity of lives and contexts being compared is greater. There has been development of number of national multidimensional poverty index using context specific dimensions and indicators. The first revision of global-MPI indicators was done in 2018, hence, this is an exploratory study to further revise the indicators based on Indian national development agenda and data availability. Methodology: This paper utilized data from the fifth National Family and Health Survey (NFHS) round conducted in 2019-2021. NFHS 5 collected data from 636,699 households and 2843917 individuals aimed to comprehensively understand the demographic and health status. The Alkire and Foster (AF) methodology was employed to calculate multidimensional poverty indices. This methodology utilizes the dual cut-off method. The revised framework incorporated modification in child mortality estimation, increase in education threshold, and composition of asset components. Results: As depicted in the Panel A. The OPHI estimates have identified 16.4% of individual to be living in multidimensional poverty in 2019-21 with MPI 0.069. Moreover, the cumulative revision of child mortality and education, and child mortality, education, and asset the head count ratio was 18.9% and 21%. The multidimensional poverty level increased from 16.4% to 21% with the revised indicators. Conclusion: This study is a primary contribution to construct a relevant multidimensional poverty index of India to reflect the multidimensional poverty of the country. This exercise adds to the literature of multidimensional poverty to track the progress and monitoring of various policies and programs in reducing deprivation level in various development indicators.

Financial Autonomy and Access to Internet among Women can Reduce Child Mortality in India: Evidence from NFHS- 5 data

Mr. Sanjay Rode

As per UNICEF report (2021), in 2020 alone 5 million children died before reaching their fifth birthday. There are large inequalities in an incidence of neonatal, infant and child mortality in states and region of India. NFHS-5 data shows that Kerala has lower incidence of it whereas Uttar Pradesh and Bihar state have higher incidence of child mortality. Women those stay in rural area with poor socio-economic background, with lower household assets and less health care access have higher incidence of child mortality. The logit regression model shows that the child mortality among women is positively co-related with rural area, underweight women, age at birth below eighteen years, cooking fuel as wood, no toilet facility in house, women and husband illiterate, Scheduled Caste, and poorer wealth quantile. The child mortality is negatively co-related with female child, television and radio at home, scheduled tribe, listen radio and watch television. Therefore, government must focus on quality education of women. If government increases the women's education from secondary school to higher secondary school and high school to college then child mortality will decline from 15 per cent to 23 per cent respectively. Access to continuous internet facility to women may reduce the child mortality more than 80 percent in India. Women must be provided technical skills for different jobs. All pregnant women must be made compulsory to complete antenatal visits and deliver the baby in hospitals. Role of NGO's and health experts and government officials is important in this direction. All such efforts will help to achieve the 2030 Millennium Development Goals related to reduction of child mortality.

A survival analysis on child mortality in Uttar Pradesh, India

Miss. Pinky Pandey

Infant mortality in India is significantly influenced by socioeconomic and demographic factors. Improvement in educational status, health, wealth, and occupation will lead to reduction in infant mortality. The purpose of the study is to determine the influence of socioeconomic, demographic, environmental, health-related, and dietary factors on under-five mortality of children. The study contains data of 35766 sampling units which is the number of children born reported within the 5 years. Different socioeconomic and demographic variables are selected as development indicators of society. In this effort, we first used the non-parametric Kaplan-Meier method of survival function estimate to analyse our data. The Cox proportional hazard model of child mortality under the age of five for several analyses with three primary categories of factors.

The association between living arrangement and depression symptoms among older population in India: Differential between migrant and Non-Migrant

Mr. Ajay Murmu and Dr. Kunal Keshri

A rapid increase in the aged population has been one of the most alarming issues in recent times (Sivaramakrishnan, 2020). Several countries have experienced population ageing, and Asia is no exception to this phenomenon (Smith, 2012). A decline in fertility levels and an increase in life expectancy resulting from economic and social development has led to occur the phenomenon of population ageing (UN, 2019). India's population is ageing. According to the 1991 census, the older population in India was 57 million, which rose to 104 million by 2011. Both the share and size of the older population are growing over time. From 5.6% in 1961 to 8.6% in 2011, the percentage has risen steadily. Nonetheless, the elderly population is expected to account for 19.4% of the overall population by 2050, with 330 million individuals aged 60 and above. This rapid ageing trend poses a new challenge to society and government. Depression is one of the most common psychiatric disorders among the elderly. It can manifest as major or minor depression and is characterized by a collection of depressive symptoms. According to the World Health Organization (WHO) report, nearly 350 million people were affected by depression worldwide. Depression causes great suffering, decrease physical and social functioning, and even increases the risk for suicide among the elderly. Living arrangements as a structural factor of social support may contribute to older adult depression. The association between depression and living arrangements had been studied previously all over the world. And these results may differ across societies and cultures. It's also differed in respect of migration status. Therefore, my study aimed to investigate the association between living arrangements and depressive symptoms by migration status.

The impact of social media on body dissatisfaction and risk of developing eating disorders among college students in India

Dr. Asmita Gupta and Dr. Prakash Muthuperumal

Social media is an indispensable part of the life of young adults. The tendency of social comparison among the youth has been exacerbated by the increasing popularity of social media. People have begun to assess their self-worth by looking for peer validation in the form of likes on their posts. The media glorification of the thin body type has propelled people to engage in upward comparison with others online. The ongoing viral hashtags #thinspiration and #fitspiration have compelled people to become increasingly dissatisfied with their body shape. In recent times the presence of thin ideal pictures, commonly known as thinspiration on popular social media platforms has garnered considerable attention. These thinspiration sites predominantly showcase content related to weight loss or fat reduction, exalting thinness, and conveying messages that promote guilt associated with food. Being dissatisfied with their body type, one may opt for extreme dietary habits leading to an increased risk for

eating disorders (EDs). Eating disorders comprise changes in eating habits and psychological disorders accompanied by changes in weight as well as leaving a prominent impact on their physical and mental well-being. According to the DSM-5 classification, the best-characterized EDs are anorexia nervosa (AN), bulimia nervosa (BN), and binge eating disorder (BED), referred to as the 3 typical EDs. Reduced self-esteem leads to elevated stress levels and previous studies indicate that people with eating disorders encounter increased instances of suicidal tendencies. Scientific investigation indicates that severe eating disorders have the potential to trigger abrupt cardiac fatality. Thus, it is evident that high levels of body dissatisfaction leading to eating disorders can adversely affect both the physical and mental health of the younger generation. This study aims to assess the impact of social media on body dissatisfaction and the risk of developing eating disorders among college students in India.

Health conditions among the currently working ageing population in India

Miss. Menamani Majhi

Introduction: Approximately 64.8% of ageing population are currently working in India. However, health conditions of Ageing populations also play a vital role in this. With increase trend of ageing population, it is also needed to focus on active ageing as this population will be the dependent population. If ageing populations will work actively for a long period of time, then it will help in strengthening economic conditions. Expenditure on health can lead to over burden on ageing, it is advisable to focus more on health and active ageing in India.

Objective: To examine the health conditions of currently working ageing populations in India.

Methods and Data Source: To fulfil the objective of research we have used LASI data, we have used simple statistical methods like tabulation and cross tabulation to see the associated factors.

Result and Discussion: As India heading towards an ageing Nation, dependent population will also increase. Among elderly population 64.8% are currently working in India. Elderly, who are staying in rural areas are working longer as compared to urban elder population. This may be due to engagement in agricultural labour. Likewise, 67 % male are currently working as compared to female (60.6%). It is also found that 83.8% elderly population who are below 60 are currently working, whereas this proportion is reduced to 27.8 in age group 70-80. 10% of 80+ elderly population are working currently. It is also seen that tribal elderly population are more working (72.87) compared to other castes. 65.49% of scheduled caste of and 63.69% of other backward class elderly population are working. With rising health concern among ageing population, existing policy on health should be modified and revised according to need of hour.

Non-Communicable Diseases Among Males and Females in Rajasthan: A Brief Comparison

Dr. Archana Muthye

A non-communicable disease can be defined as an impairment of bodily structure and/or function that necessitates a modification of the patient's normal life, and has persisted over an extended period of time. Non-communicable diseases include cardiovascular, renal, nervous, musculo-skeletal conditions like arthritis, mental disorders, diabetes, and respiratory disorders like asthma, metabolic and degenerative diseases. India is experiencing a rapid health transition with a rising burden of Non-communicable diseases (NCDs) causing significant morbidity and mortality both in rural and urban population, with considerable loss in potentially productive years (age 35-64) of life. NCDs are estimated to account for about 53 percent of deaths. According to National Family health mission- 5 key indicators, high blood sugar in adults above 15 years male, a total (rural and urban) of 8.7 percent while 7.0 percent were females. In the case for Hypertension, adults above the age of 15, 17.4 percent males were diagnosed with high blood pressure. While female percentage was 14.9 (rural and urban) The most common risk factors for NCDs include insufficient physical activity, unhealthy diet, obesity,

raised alcohol consumption, tobacco, cancer associated infections and environmental risk factors. Prevention is a multi-factorial process. But it begins with identification of risk factors, health promotion activities, and a healthy lifestyle.

Adverse Childhood Experiences and Health Risk Behaviours Among Adolescents and Young Adults: Evidence from India

Chanda Maurya and Priya Maurya

Background: The childhood years, from prenatal to late adolescence and early adulthood, are "building block" years for basis of intelligence and skill development, self-motivation, social behavior, health and adult relationships, which extend into adulthood. Adverse childhood experiences (ACEs) are traumatic and stressful events that occur in childhood and strongly predict health risk behaviours (HRBs). So present study aims to examine the association between ACEs and HRBs. This study also analyses outcomes in aggregate to estimate the impact of cumulative adversity on various risky health behavioural factors among adolescents and young adults.

Data and Methods: Data were drawn from the second wave of Understanding the lives of adolescents and young adults (2018-2019) survey conducted in two states of India. Bivariate and multivariate analysis were conducted to full fill our objective.

Results: The findings show that nearly 30% of the boys and 10% of the girls had violent behaviour. Substance use prevalence was much higher among boys (34.11%) than girls (6.65%). More boys had negative gender attitudes. Majority of the study participants had multiple ACEs. Around one in five girls (18.81%) had three or more ACEs, whereas the same prevalence for boys was 16.26%. A strong association between ACEs and health risk behaviours in adolescence and young adulthood was also found. Adolescents and younger adults who experienced three or more ACEs were at significantly the highest risk of risky health behaviors than those with no childhood adversity experience

Conclusion: The study findings underlined the need for implementing outcome-oriented approaches to adolescents' health care and behavioural risks. A potential model could be to create awareness among family members, caregivers and communities to be more empathetic towards the children. Also, the decision-maker needs to work towards ensuring the protection of their rights and preventing their exploitation by formulating guidelines and strict laws.

Measuring components of out-of-pocket health expenditure on elderly during 365 days reference period in Haryana

Mr. Vishal

Geriatric healthcare remains a costly affair for most of the households in Haryana state where ageing is expected to rise progressively. Irrespective of socio-economic background, the households spend enormous amount on healthcare of their ailing older members. Estimates from the field reveal that about 12.0 percent of the total household income and 82.0 percent of the total health expenditure of the household were devoted to keep the elder members healthy during 2020â€"21 in the state. In view of high OOPHE on the elderly in Haryana, it is imperative that such expenditures are disaggregated, evaluated, and contextualized to understand the role and dynamics of various components. A closer look at the composition of OOP health expenditure shows that a sum of Rs. 49,804/- was spent on elderly during 2020-21 which is 22.5 percent of elderly income and 8.9 percent of household earning. It establishes the fact that the elderly healthcare continues to be expensive in Haryana. As high as Rs. 16,492/- is spent on drugs followed by Rs. 16,054/- on consultation and Rs. 10,849/- on diagnostics. A 365-days capturing of health expenditure reveals that expenditure on purchase of medicine, consultation, and diagnostics together account for around 87.0 percent of the total OOP health

expenditure in old-age. The single largest source of OOP health expenditure in old-age is purchase of medicines (33.1 percent), followed by consultation fees (32.2 percent) and diagnostic tests (21.8 percent). Such a large out-of-pocket health expenditure (OOPHE) seems to be burdensome for most households in view of their limited capacity to pay and is replete with adverse social, economic, and psychological consequences.

Health Outcomes Among Older Adults in India: An Intersectional Approach

Sneh Shrivastava and Sandhya Rani Mahapatro

Existing literature points out gender bias in self-rated health among older adults in India as more older women in India report poor self-rated health than older men. A similar disadvantage can be observed in health outcomes across economic classes. Thus, to better understand such bias, it becomes important to measure the extent of disadvantage at the intersection of gender and class. Intersectionality is a novel means of addressing policies to tackle inequalities and disadvantages. Utilizing the first wave data of the Longitudinal Ageing Study of India (2020), this paper investigates the intersectionality of class with gender in determining poor self-rated health among older adults in India. Bivariate analysis was performed to measure the prevalence of poor self-rated health across various socio-economic and demographic variables. Secondly, the intra-class variation was numerically assessed by calculating conditional odds. This measurement provides valuable insights into the social determinants of health and helps to identify the most vulnerable groups in society. Lastly, multivariate logistic regression was used to measure intra-class differentials in poor self-rated health. Results from the bi-variate exercise point out significant gender differences in poor self-rated health. Further, the conditional odds point out that the odds for poor self-rated health among females in the lowest income quintile are significantly higher than the odds for poor self-rated. The findings indicate the importance of an intersectional approach in identifying the most vulnerable section of society. This study will add to the expanding body of literature on gender differences in health and will help shape policies targeted at improving the health of older individuals in India.

Seasonal fluctuations in glycaemic levels - A study based on the population of an urban community in Mumbai

Miss. Puja Goswami and Dilip T R

This study addresses a research gap concerning the dearth of information on seasonal fluctuations in glucose levels among diabetes patients in India. The study's primary objective is to bridge this gap by examining seasonal variations in glycaemic levels within a cohort of diabetes patients benefiting from contributory health services schemes (CHSS). A retrospective analysis was conducted using a hospital database, delving into lab test results from diabetes patients over a period of up to ten years. Notably, higher HbA1c levels are observed during the summer and winter seasons, in comparison to the monsoon period. Furthermore, these higher levels are linked to older age groups and female patients. Also, poor glycemic control during peak seasons tends to persist, contributing to a gradual annual increase in HbA1c levels. This may explain the observed upward trend in HbA1c levels over the study duration. Moreover, the study sheds light on a noteworthy correlation between daily meteorological parameters and fasting plasma glucose (FPG) levels. Specifically, maximum temperatures demonstrate a strong association with FPG levels in women. Availability of fruits and vegetables, the frequency of festivals, and the extent of physical activity all fluctuate based on changes in temperature and rainfall, consequently affecting glycemic control through alterations in lifestyle. Public health campaigns can be initiated to create awareness among the population about the need for increased vigilance during these seasons.

Adjustment of Truncation Effect in First Birth Interval using Current Status Data Technique

Background: - Cross-sectional data experience the truncation effect and selection bias while estimation offertility parameter from the data on married women's first birth interval (FBI). In a cross-sectional survey theexposure time (i.e., marital duration) is not the same for women who have experienced their first birth. Also,there are observations where the first birth has still not occurred.

Objective: - Adjustment of the Truncation Effect and the selection bias using the Current Status Data Techniquein cross-sectional data on duration of FBI.

Methodology: - Data from the National Family Health Survey (NFHS-IV) is used. The duration of the FBIof only women who conceive their first birth before 120 months from the date of survey were included in thestudy. A Current Status Data Technique is used to adjust the truncation effect. The distribution of the first birth interval and the sample size is estimated.

Result: - The estimate of the first birth interval is 30.70 months on using Current Status Data. The minimum sample size required for the estimation of the first birth interval obtained from Current Status Data Techniques is over 5000 observations for the estimation of the first birth interval.

POSTER PRESENTATION ABSTRACTS

Estimating undocumented migration: a model-based investigation on west Bengal, a state in India, since independence and partition

Ardhendu Banerjee and Aniket Biswas

World Happiness Report(WHR) released in 2018 among others, ranked the countries around the world with respect to the happiness level of immigrants measured in ladder-score from 0 to 10. Regression analysis with happiness score as response and several important determinants (covariates) has also been reported in that study with usual least square assumptions for finding important covariates and prediction purposes. First, we point the statistical problem out in doing so and attempt modeling this happiness level by first dichotomizing the response (as either happy or unhappy) and then employing binary regression with the given covariates. The risk associated with miss-specification of the link functions is demonstrated by considering four popular choices (Probit, Logit, Cauchit and Complementary log-log) and a new data driven computational routine based on assessment metrics and cross validation is prescribed to choose the best link function. Important covariates are reported thereafter considering the best choice. World Happiness Report(WHR) released in 2018 among others, ranked the countries around the world with respect to the happiness level of immigrants measured in ladder-score from 0 to 10. Regression analysis with happiness score as response and several important determinants (covariates) has also been reported in that study with usual least square assumptions for finding important covariates and prediction purposes. First, we point the statistical problem out in doing so and attempt modeling this happiness level by first dichotomizing the response (as either happy or unhappy) and then employing binary regression with the given covariates. The risk associated with miss-specification of the link functions is demonstrated by considering four popular choices (Probit, Logit, Cauchit and Complementary log-log) and a new data driven computational routine based on assessment metrics and cross validation is prescribed to choose the best link function. Important covariates are reported thereafter considering the best choice.

Spatio-temporal changes and determinants of overweight/obesity among women of reproductive age in urban India: evidence from national family health survey

Subhojit Let

Background: Overweight/obesity is a significant public health concern around the world. Despite government attempts to reduce overweight/obesity, the prevalence among women of reproductive age (WRA) in India have increased, especially in urban areas. This study seeks to evaluate trends and determinants of overweight/obesity prevalence among WRA in urban India and its states from 2005 to 2021. Methods: The study used 44,882, 171,443, and 135,272 WRA aged 15-49 from NFHS-3 (2005-06), NFHS-4 (2015-16), and NFHS-5 (2019-21). Chi-square and multivariable logistic regression were used to examine predictor-outcome relationships. Results: The prevalence of overweight/obesity among WRA in urban India has increased from 23% in NFHS-3 to 33% in NFHS-5. Furthermore, among states, it was even wider. For instance, Punjab (35.74%), Andhra Pradesh (42.27%), and Tamil Nadu (45.86%) had the highest prevalence rates in NFHS 3, NFHS-4, and NFHS-5, respectively while Meghalaya had the lowest in all rounds. Overweight/obesity rates increased in all states over the study periods. Notably, Odisha had the highest increase of overweight/obesity nearly 22 percentage points while Gujarat has the mere increase in overweight/obesity of three percentage points between NFHS-3 and NFHS-5. Moreover, 14 states have witnessed an overweight/obesity increase exceeding ten percentage points, surpassing the national trend. Pooled regression identified women aged 40-49 years [AOR: 5.98, 95% CI: 5.71- 6.27] having three to four children [AOR: 1.28, 95% CI: 1.23-1.33] from the richest quintile [AOR: 4.23, 95% CI: 3.95- 4.54], lives in south India [AOR: 1.77, 95% CI: 1.72-1.82], those have diabetes [AOR: 1.92, 95% CI: 1.83-2.02] and those have mass media exposure [AOR: 1.13, 95% CI: 1.09-1.17] more likely to be overweight/obese. Conclusion: Given the rise in overweight/obesity among urban women in India with wide variations across the states, the

government should consider state specific strategies and determinants-based policies to reduce the overweight/obesity.

The impact of health insurance support on maternal health care utilisation in India and North Eastern states

Dr. Aditi Das

Maternal health care financing is key to the smooth functioning of the health system in a country. In India and specially in Assam maternal health care still persists as a major public health issue. Adequate health insurance could transform the utilisation of maternal health care services. Therefore, the aim of the paper is to examine the health insurance policies that cover maternal health and their performance in India and North Eastern states in particular. The study has used maternal child health care services in 365- days reference period as a unit of analysis. The study has used statistical tool such as bivariate analysis, logistic regression and propensity score matching.

Study on Child Malnutrition and Morbidity in Uttar-Pradesh: Using Structural Equation Model and Geo-Spatial Analysis

Mr. Anuj Singh and Anuj Singh

Child malnutrition is a pressing global health concern that affects millions of children, particularly in low- and middle-income countries. Globally in 2020, 149 million children under 5 were estimated to be stunted, 45 million were estimated to be wasted, and 462 million are underweight. In India, it continues to be a critical public health issue, posing significant challenges to the nation's socio-economic development and future prosperity. Since Uttar Pradesh (UP) being one of the most grappling states with a high burden of malnutrition. Uttar Pradesh has a high poverty rate, with a substantial proportion of the population living below the poverty line. Poverty limits access to nutritious food, clean water, and sanitation, all of which are crucial for child growth and development. According to the National Family Health Survey (NFHS) conducted in 2019-20 [NFHS-5 report], the prevalence of stunting, wasting, and underweight among children under five years of age in UP was 39.7%, 17.3%, and 32.1%, respectively. These rates are significantly higher than the national average, highlighting the urgent need for effective interventions to combat child malnutrition in the state. For this study, we have used National Family Health Survey, 2019-21. And the objective is to assess the prevalence and distribution of child malnutrition and morbidity, explore key determinants, understand their interrelationships, identify high-risk areas, and provide evidence-based recommendations for targeted interventions. Several background characteristic variables contribute to the high prevalence of child malnutrition in Uttar Pradesh. And we have also found that malnourished child significantly affects morbidity and have 0.032 coefficient value that affects morbidity of child. And out of 75 districts in UP, 19 districts have triple burden of malnutrition, 20 districts have double burden of malnutrition and 21 districts have at least single malnutrition in UP have been found.

Sociodemographic determinants of health and its effect on tobacco use using LASI Data
Hemalatha Vegi

Sociodemographic determinants of health and its effect on tobacco use using LASI Data Background: Tobacco usage is linked to 5 million fatalities worldwide each year and is one of the primary causes of early death. While modern pharmacological and behavioral treatments are beneficial in boosting quitting success, relapse to smoking remains common, reflecting nicotine's strong addictive nature. Year by year there is an increase in the number of individuals depending on tobacco. Education, socioeconomic status, caste, religion, etc. have a major role in determining the dependence. Methods: Cross-sectional nationally representative data were collected in wave 1 (2017-2018) of the Longitudinal Ageing Study in India. Tobacco usage was measured based on the dependence of either smokeless or smoked tobacco.

Results: Tobacco usage is mostly dependent on the socio demographic factors like age, place of residence, education level, religion, caste, wealth quintile, etc. Association was found with sociodemographic features. Conclusion: Tobacco has always been responsible for causing serious health problems on a long-term basis. Various programs and policies have to be made such that there is less dependence on tobacco. Schools and other institutions have to strictly explain the ill effects of tobacco consumption.

Childlessness among currently married Indian women, with special reference to 40-49 years old, who are married for at least 5 years: An analysis based on NFHS-5 data

Mr. Aravind Nair and Dr. Angan Sengupta

This study attempts to understand the association between selected socio-economic factors and childlessness among Indian women who are currently married for at least five years. We have also examined the scenario focusing among women aged 40-49 years. This study analyzes National Family Health Survey -5 data (2019-21). The survey includes 437817 females who are currently married for more than 5 years. Among these, 147242 females belong to the age category of 40-49 years. Level of childlessness has been observed to be highest in the state of Goa (6%) followed by Karnataka (4.2%), Mizoram and Tamil Nadu across all age categories. The odds for childlessness in urban resident is 1.2 times higher than a rural resident and it increases to 1.4 times when it comes to 40-49 age category. Women from the richest wealth quintile have 20 % lesser chance of not having a child with respect to the poorest and the chance is even lesser around 60% when it comes to the 40-49 age category. Women with higher education have higher probability of childlessness in comparison to no education for all age categories, as well as 40-49 age category. Religion does not play a significant role in determining fertility except amongst Christian category, where they have 1.2 times highest chance of not having a child as compared to Hindus. Overall, SC and ST castes have significantly higher chance of being childless by 1.1 and 1.4 times respectively, when compared to the General category. The scenario changes drastically among women in 40-49 age category. As compared to 15-29 years old women childlessness is significantly lesser among 30-39 years (OR=0.555) and 40-49 years (0.504) old females. India is slowly entering the fourth phase of demographic transition, and hence this is important to understand the pattern of childlessness among Indian population.

Assessing the impact of Social Health Insurance scheme by West Bengal state government in reducing out-of-pocket expenditure: A community-based Mixed Method study on Howrah District

Dr. Sibasis Mandal and Dr. Ritesh Singh

Introduction: This study aimed to determine the coverage and utilization of social health insurance (Swasthya Sathi) implemented by the West Bengal State government) in the Howrah district of West Bengal and its impact on out-of-pocket expenditure (OOPE). Methods: A mixed-method community-based study was conducted with 881 samples from selected villages and urban hamlets. Pre-validated and pre-tested structured questionnaires & Interview guides were used. Socio-demographic, economic and educational, disease (if any) profile and household medical expenses were collected with and without the scheme. Forty-three interviews were done with selected households for the qualitative part of the study. Results: Health insurance coverage was 67.2%, with higher utilization among people with higher education levels and regular wages or salaries. The reduction of OOPE was found to be 66.7% and 60% for other health insurance and Swasthya Sathi, respectively however, 67.9% of households without health insurance or who did not use insurance faced financial catastrophe. In comparison, 52.5% of families who used Swasthya Sathi faced financial catastrophe considering 40% or more of the non-food expenditure scale. Utilization of services was hindered by several reasons, such as denial of

benefits, uncovered services, and lengthy administrative procedures. Conclusion: The study concludes that health insurance reduces the burden of medical costs to some extent, but OOPE is still evident and forces people into financial catastrophe and subsequent impoverishment. Challenges remain in implementing and utilizing the process, but the initiative is welcomed as it relieves the burden on households.

Women's Choice of Menstrual Hygiene Products and Factors Influencing their Purchasing Behaviour: A Conjoint Analysis Study

Miss. Chitra Saroj and Abhay Kumar Tiwari And Vaishali Patel

Mensuration is a natural and biological phenomenon experienced by middle-aged adolescent girls and women. They made their own way of tackling the menstrual period with the already existing myths and beliefs. The main focus of this study is to analyze the female's willingness to buy any sanitary product by investigating the preferences of the attributes of sanitary products used during the menstrual period. Analysis has been performed to find out the utility values and relative importance ascribed to different attributes such as comfort, effectiveness, hygiene, etc. Here two hundred and ten women were interviewed residing in Banaras Hindu University Campus. Descriptive and chi-square techniques are used to explain the demographic characteristics of the respondents and the attribute with their associated levels and examine the dependence between these characteristics with the type of method used during periods. Conjoint analysis was used to elicit preferences and to determine the utility value. After analysis, results show that synthetic sanitary napkins are more widely used among women than any other menstrual hygiene products and lack of accessibility and high cost are the major reasons for not using sanitary products. Strong dependence was identified between demographic characteristics, the type of sanitary product used, and knowledge about new Methods of Menstrual Hygiene. Results also unfold the fact that women give the most importance to the type of sanitary product and the least importance to hygiene. Women also prefer to purchase any synthetic sanitary napkin that is more effective, safe, comfortable, affordable, and that need not be changed in less than four hours.

Positive Ageing in India

Mr. Ambady Sivan and R Lusome

Indian society has long accorded high value and dignity to elderly people in the joint family system. With increased migration and globalisation, there is erosion in the dignity of the aged. The increased focus on monetary evaluation in productivity has rendered many elderly as dependents. The present paper analyses positive ageing, emphasising the productive participation of elderly. Using data from the first wave of the Longitudinal Aging Survey of India (LASI), the paper examines the correlates of positive ageing in India. Following Rowe and Kahn's model, the analysis pertains to four domains of elderly productive activities: currently working status, volunteering, decision making and caregiving. Bivariate analysis shows that about 28 percent of the elderly in India are currently working; two-thirds participated in caregiving for grandchildren. The majority of the elderly population is engaged in household activities, and about 17 percent of the elderly decide on their family matters alone. Logistic regressions have been run to determine the factors affecting the elderly's productive activities. The result shows that elderly people in urban areas have a significantly higher chance of working. As compared to currently married elderly, those who are divorced have a significantly lower chance of engaging in productive activities. Elderly persons with non-communicable diseases have higher odds of working and making decisions alone but lower odds of caregiving and household activities. Female elderly have significantly higher odds of currently working and household activities but significantly lower odds of taking decisions alone. Aged people dissatisfied with life have significantly lesser productive activities showing that active participation in productive activities positively impacts the well-being and life satisfaction of the elderly. With proper familial and medical support, the elderly can continue to contribute productively to the well-being of the family and society.

A Comparative Study of Households' Out-of-Pocket Expenditure on Medicines in Selected Districts of Odisha

Mr. Imteyaz Ahmad, Ranjit Kumar Dehury, Parthsarathi Dehury and Rajkishor Sahoo

Introduction: The socioeconomic differentials in the impact of out-of-pocket health expenditure on impoverishment in China and India using WHO SAGE data Kumar et al. (2015) came with findings that suggest India needs to revisit its pharmaceutical policy to reduce the Out-of-Pocket (OOP) expenses. Rout & Choudhury (2018) estimated OOP expenditure for various diseases at secondary-level public health facilities in Odisha. The mean OPP expenditure was INR 3136.14, with medicine expenses constituting a significant portion. Objective: The study aimed to draw a comparative analysis of households using the wealth index with regard to OOP expenditures on medicines in Odisha. Methodology: Cross-sectional household survey is used to conduct the research. Access to medicines focusing on OOP expenditure in Odisha is studied by selecting six districts purposively; Rayagada, Kalahandi, Angul, Keonjhar, Khordha, and Kendrapara. Households were chosen as the research unit. The survey took place from October 2022 to February 2023. A structured household questionnaire with a sample of 902 was used to collect the data. Results: Fifty-six percent of households spent on medicines out-of-pocket in the last four weeks. The share of medicine expenditure to total expenditure was highest among poor households (15.8%), while only 3.5% of wealthy households were facing extreme expenses on medicines. In Khorda (100%), Kendrapara (97.2%), and Keonjhar (95.5%), households' expenditure on medicine against total household expenditure is low. While Rayagada (22.7%), Angul (14.6%), and Kalahandi (10.9%) households' total expenditure constituted high medicine expenses. Conclusion: Policy framing and scheme formulation are continuously taking shape to improve access to medicines and minimisation of OOP expenditures in Odisha. The schemes are lacking on one major front, and it has been highlighted in many studies a long ago; regional inequality or disparity.

An Assessment of Gender Equity in Access to Quality Higher Education in Malappuram District, Kerala

Mr. Jamshid Vannatham Kandi and V. Nirmala

Education plays an important role in the overall development process of a country. The importance of education in poverty eradication, economic growth, reduction of crime rates and sustainable development is widely accepted. UNESCO (2020) reports the existence of large gender gap in education world-wide. It directly affects economic growth by lowering average level of human capital, productivity and indirectly through population growth. Studies have pointed out negative relation between gender inequality in education and economic growth. Hence, besides gender equality, the focus of policy makers have also changed from quantity to quality of education. In this context, the paper investigates gender equity in access to quality higher education in Kerala and its determinants. It also examines the reasons for choice of course by gender. The study uses data collected during June - November 2022 from 386 higher education level respondents (157 males and 217 females) from Malappuram district of Kerala. Simple averages, percentages, ratios, multiple regression, Garret ranking and t-tests are used for the analysis. The findings of the study revealed age of both male and female respondents to be around 20 years. Majority of them are rural Muslims, belonging to Backward caste. A quarter of the girls and 16 percent boys are married. More than half of them come from migrant families, and have about two siblings. More than half are second generation learners, and three-fourth parents assist them in studies. Majority have joined aided private institutions, with more males enrolled in professional colleges and paying higher fees, but more girls receiving scholarships. The selection of educational course was mainly due to self-interest for both, but while girls gave second importance to status in society, for males it was employment. Malappuram district demonstrates more gender equity, which needs to be supported further by opening quality colleges closer home.

Examining the role of food insecurity, life satisfaction and migration status on Depression among older adults in India

Mr. Vikesh Kumar and Kunal Keshri

This study examines the association between food insecurity, life satisfaction, and migration status on depression among older adults. Finding the existing association/linkages between high/ low life satisfaction and migrants against food insecurity on depression among older adults. Data for this study was utilized from recent release of the Longitudinal Ageing Study in India (LASI) wave 1 2017-19. The bivariate analysis supports the result of the logistic regression of our study. The unadjusted estimates provide that those older adults having food insecurity had a significantly 50% more likelihood of having depression than those who have food security (UOR=1.49; 95%CI: 1.30-1.71). Similarly, older adults having migrant status had a significantly 31% less likelihood of having depression than those who have non-migrant status (UOR=0.69; 95%CI: 0.61-0.77), and those who were highly satisfied with life had significantly 59% less likelihood of depression than who have low life satisfaction (UOR=0.41; 95%CI: 0.37-0.77). Adjusted estimates provide that older adults who were food insecure, had low life satisfaction, and migrants status had a 73% significantly higher likelihood to be depressed than food insecure, high life satisfaction and migrants status [AOR: 1.73; 95%CI: 1.40-2.13]. On the other hand, those who had the status of insecure food, low life satisfaction and non-migrant were significantly 63% more depressed [AOR: 1.63; 95%CI: 1.31-2.03;] than food insecure, high life satisfaction and migrant status. The study demonstrate that those with no food security, low life satisfaction, and migrant status were 73% significantly higher likelihood to be depressed than food insecure, high life satisfaction, and migrants status. On the other hand, those who had status of insecure food, low life satisfaction and non-migrant were, significantly 63% more depressed. Meanwhile, the policies should focus on well-being of older adults, especially those who are food insecure and migrants older adults.

Formal Education, Vocational Training, and Youth Well-being: A Multivariate Approach

Miss. Deboshree Das

Objective: The study aims to comprehend how formal education and vocational training impact the well-being of youth, informing educational policies and support systems. It addresses critical questions about the effectiveness of educational pathways in shaping the holistic development of young individuals. Methods: Drawing on data from the Young Lives Study, this study seeks to provide a comprehensive understanding of how educational pathways shape the well-being of youth. The study employs a dataset spanning the life trajectories of youth aged 12 to 22. Through the application of logistic regression and Multivariate analysis of variance (MANOVA), it assesses the collective impact of formal education, and vocational training programs on individual well-being. Results: Initial results indicate that formal education significantly contributes to cognitive development and provides a solid foundation for career opportunities. However, vocational training programs emerge as crucial catalysts for enhancing employability, instilling self-confidence, and directly affecting positive well-being outcomes. Furthermore, the combined effect of both formal education and vocational training reveals a nuanced interplay that shapes the well-being landscape among youth. Conclusion: This study carries significant policy implications, shedding light on the importance of comprehensive educational pathways in fostering well-being. By utilizing advanced statistical methodologies and leveraging the rich dataset from the Young Lives Study, this research provides valuable insights that can inform policymakers, educators, and youth development advocates in crafting more effective strategies for empowering the younger generation to lead fulfilling lives.

Exploring Child Marriage and its Impact in Darrang District of Assam

Miss. Jyotika Deka

Child marriage poses a grave concern within the state of Assam, India, with Darrang district witnessing an alarming rate of 42.8% of child marriages, among the highest nationwide. Troublingly, over 16% of young women aged 15-19 were already mothers or pregnant during the National Family Health Survey. Despite earnest attempts by the state government, child marriage remains entrenched, exacerbated by complex social, economic, and cultural factors. The region's pervasive dowry tradition, poverty, lack of education, and entrenched gender roles collectively fuel this crisis. National Crime Records Bureau data revealed 23 reported child marriage cases in 2019 in Darrang, though many incidents likely remain unreported, especially among Muslim communities. This paper delves into a qualitative exploration encompassing 30 individuals through interviews and participatory observation. It aims to illuminate global ramifications of child marriage, spotlighting gender roles, societal norms, economic landscapes, and political dynamics. It also seeks to evaluate existing anti-child marriage interventions while exploring alternative strategies. Noteworthy findings underscore the pivotal role of poverty as a driver, prompting families to marry off daughters as a financial relief. Gender-based violence links with child marriage, with girls facing domestic and dowry-related violence. The research underscores the grave impact on girls' well-being, education, and health, accentuating that early marriage precipitates school dropouts, malnutrition, and limited healthcare access. Significantly, the study spotlights the impact of inadequate teacher-student ratios on girls' education, notably in Muslim communities, contributing to child and early marriages. The Assam government's initiatives, such as the Assam State Commission for Protection of Child Rights, National Commission for Protection of Child Rights, and District Child Protection Unit, have played pivotal roles in curbing child marriages in Darrang. However, a concerted effort involving governmental bodies, NGOs, and stakeholders remains essential to perpetuate awareness regarding child marriage's hazards and enforce stringent legal prohibitions against this practice.

Minimum Adequate Diet and Association with Anthropometric Failure (Stunting) among Children under 5 Years of Age (6-59 months) in India: Evidence from the Nationally Representative Survey (NFHS-5)

Mr. Mriganka Dolui

Background: Based on a lower decline prevalence of malnutrition among children under 5 years of Age (6-59 months), understanding the risk factors of stunting is crucial to inform policy and program interventions to address the problem. In this study, we empirically assessed the associations of behavioural trait factors such as consumption of diet and frequency of food consumption by the children, and a variety of demographic and socioeconomic characteristics of mothers to the prevalence of stunting in children under age five years (6-59 months) among social groups. Methods: The study utilized data from the most recent national family health survey (NFHS-5) of India, employing a cross-sectional design restricted to children aged 6-59 months. Descriptive statistics along with bivariate analysis, were conducted with a chi-square test ($\ddot{I}\ddagger2$-test). Additionally, multivariable binary logistic regressions were conducted to find the relationship between the level of stunting and behavioural factors such as minimum adequate diet (MAD) of children, demographic and socioeconomic characteristics. Results: It was revealed that children belonging to the scheduled tribe (ST) had a higher prevalence in terms of minimum adequate diet (MAD) (17.86%) and stunting (38.52%). Additionally, the children who get a minimum adequate diet (OR: 0.952; CI: 0.929-0.976; $p<0.05$) with uncontrolled indicators are less likely to have stunting. On the contrary, the odds ratio of stunting was higher among all age categories, mothers having more than 3 birth orders (OR: 1.306; CI: 1.27-1.343; $p<0.05$), exposure to smoking (OR: 1.075; CI: 1.033-1.119; $p<0.05$), under unsafe sanitation facility (OR: 1.071; CI: 1.046-1.097; $p<0.05$). Conclusion: The study highlights that Minimum Adequate Diet (MAD) significantly contributes to malnutrition, especially stunting. The results emphasize targeted interventions addressing nutrition, maternal health, sanitation, and hygiene to combat childhood

stunting effectively. Policymakers can use these findings to create comprehensive strategies for healthier growth among children from diverse social backgrounds.

Maternal Metabolic Health Conditions and Risk of Stillbirth in India: A Cross-sectional Study of NFHS-5 Data

Dr. Mohammad Hifz Ur Rahman

Stillbirth remains a pressing concern in India, requiring a thorough investigation of its association with maternal metabolic conditions. Using National Family Health Survey-5 data, this cross-sectional study examined the association of 131,167 mothers' diabetes (4.1%), hypertension (6.3%) and obesity (17.3%) with stillbirth risk (2.7% rate). Regression analysis demonstrated significantly higher stillbirth risk with maternal diabetes (adjusted risk ratio 1.16, 95% CI 1.05-1.29) and obesity (12% increased risk). Coexisting diabetes and hypertension synergistically increased risk further (aRR 1.42, 95% CI 1.21-1.66). Diabetes conferred greatest risk among mothers aged â‰¥35 years (aRR 1.31) and those lacking antenatal care (aRR 1.24). Geographically, the highest risk was in Central India (aRR 1.52 vs 1.09 in South). Our findings highlight the need to optimize maternal metabolic health through screening, monitoring and management before and during pregnancy to mitigate stillbirths. Targeted interventions for high-risk mothers and regions are warranted. Addressing modifiable metabolic risks via collaborative efforts can help curb India's huge stillbirth burden and promote maternal-fetal health.

Role and attitude of men to ensure safe SRH of their young spouses: An assessment of youth-focused intervention in West Bengal

Mr. Janardan, Sushanta K. Banerjee, Samina Parveen and Moumita Sarkar

Background: Early marriage and teenage pregnancy among young women 15-24 in West Bengal impact the health and rights of young women. Lack of awareness, agency, social support, and low uptake of male contraceptive methods make them vulnerable to poor SRH outcomes. To facilitate the improved SRH journey of young women through the lens of gender-responsive behaviour and practices of their partners, Ipas Development Foundation (IDF) implemented a youth-focused intervention with partners (18-30 years) of young women (15-24 years) to ensure strong male support to facilitate the process of accessing safe and improved SRHR services in selected blocks of South 24 Pargana district. Method: A pre-and-post-intervention study design was adopted in two intervention blocks Sagar and Namkhana. The baseline 2022 [N=264 respondents] helped assess ground reality and frame the SBCC strategy. The endline 2023 [N=308 respondents], aimed to assess the change in outcome indicators. Cross-sectional analysis and tests for statistical significance were done for each of the outcome indicators of the intervention. Composite scores were calculated for Knowledge of SRH aspects, attitude towards gender equality, and overall partner support in wifeâ€™s SRH journey. Findings: Access to information and services, knowledge of SRH-related issues, and spousal interactions on FP have improved significantly. The GEM scale-based mean composite score at endline was 79.2 [Range:0-144] over the baseline score of 68.9 reflecting a significant positive change in the partnerâ€™s attitude towards gender equality. A 9.1%-point increase in using modern contraceptive methods accommodating the first-time user (7.1% points) and a shift from traditional methods (1.8% points). The mean composite partner support score improved from 7.52 [Range: 0 -23] at the baseline to 9.10 at the endline. Couple counselling (76%), exposure to outreach activities (25%) and improved spousal dynamics (71%) reflected in an increased mCPR and increased partner's role in their spouse's SRH journey.

Association of duration of urban residence, and obesity in Indian rural-to-urban migrants: A perspective from Longitudinal ageing study in India

Mr. Bittu Mandal

With rapid urbanization and extensive rural-urban migration, obesity has become an increasingly prevalent health risk in low- and middle-income countries (LMICs). Previous research has consistently indicated that the exposure to urban environments has adverse effects on health, with a particular emphasis on its association with obesity. However, it remains unclear whether such patterns exist in India. Furthermore, given the increasing trend of an aging population, previous research has lacked focus on rural-urban migrants belonging to middle-aged and older age groups. Additionally, varying levels of urban life exposure among migrants have been largely overlooked. This study utilized data from the first wave (2017-18) of the Longitudinal Ageing Study in India (LASI) to examine general obesity and abdominal obesity among middle-aged and older adults, aged 45 or above (N = 31,700). BMI (>25 kg/m2) and waist circumference (>102cm and >88cm for men and women, respectively) were employed to assess overall obesity and abdominal obesity. The prevalence of overall obesity was found to be 3.31% and 11.34%, and for abdominal obesity, it was 10.44% and 31.18% for rural non-migrants and rural-to-urban migrants, respectively. By utilizing logistic and quintile regression techniques, the research reveals that individuals migrating from rural to urban areas have notably higher chances of experiencing overall and abdominal obesity compared to those who remain in rural regions. Moreover, within the group of rural-urban migrants, early-age migration and prolonged urban residence are strong and cumulative predictors for both overall and abdominal obesity. This study identifies migration and urban exposure as crucial risk factors for the development of obesity. Consequently, it is essential to introduce intervention programs focused on achieving a healthy weight status among rural-urban migrant communities in India, with a particular emphasis on women.

Diseased Individuals Family Relations, Practical, Social and Emotional Perspectives

Miss. Ragini Mishra

This paper presents the result from a qualitative study conducted in 2021 ,Palghar, India consisting interviews with 30 sickle cell Disease patients regarding their experience with respect to this genetic disease, and its reflection on their social roles as parents, family and community members, friend, interpersonal and psychosocial behavior. Using a qualitative research approach named the current study revealed lived experiences of 30 people having the disease and are currently suffering from the problem and related morbidity which is likely to influence their status in the society. The 30 respondents provided a bottom-up approach of how disease person and family members organize daily life in practice. The current paper describes the following theme: the time and financial costs, physical and emotional demands and coping mechanism associated with the disease and raising a diseased child) derived from the qualitative data using using a research approach named Institutional Ethnography. The impacts will likely depend on the severity of the condition as well as the emotional and financial capital of the family and the community resources that are available. The objective of this paper is to report the preliminary findings of this research and to discuss implications for the future in terms of policy development, service planning /and delivery.

Empowering Women: A Key Strategy for Building a Healthy Maternal Healthcare Environment in Urban India

Miss. Sunandita Das and Deepak

Despite advancements in medical technology and improved access to healthcare, maternal mortality remains high. National Family Health Survey-5 report found only 68.1% of urban women availed four or more ANC visits, and 84.6% had postnatal check-ups within two days of birth. Objectives- The main objective is to understand the association between women's empowerment and maternal healthcare service utilization in urban India. Data and Methods- This analysis is restricted to 37975 ever-married 15-49-year-old urban women who had a live birth in the 5 years preceding the survey, done by National Family Health Survey 2019-20. Regression and principle component analysis (SWPER index) were considered for this study's analysis. Result and Discussion- The usage of four or more antenatal visits, skilled birth attendants, and post-natal check-ups shows increased patterns in urban India from 1992 to 2020. Socio-economic factors like the mother's age, religion, caste, education, wealth status, birth order, pregnancy intention, exposure to work, and mass media are strongly associated with these services utilization. Our regression analysis shows that when a woman has high social independence and household decision-making capacity, she is more likely to access maternal healthcare services. Conclusion- This study also infers that if women's empowerment plays an important role in urban maternal healthcare service utilization, then why not in rural India? Empowering women can be a key strategy to enhance the utilization of maternal healthcare services in overall India, which can lead to building a healthy and more equitable environment for women and their children.

Gynaecological morbidities and treatment-seeking behaviour among women in Eastern India: Evidences from National Family Health Survey (2019-2021)

Miss. Nilanjana Gupta and Dr. Papia Raj

Introduction: Gynaecological morbidity includes any disorder, disease, or dysfunction of the reproductive system that is unrelated to pregnancy, abortion, or childbirth but may be linked to sexual behaviour. This contributes a sizable proportion of the disease burden in women. The 'culture of silence' attached to gynaecological morbidities forbids many women to seek treatment. Women feel shy and disgraced to discuss these gynaecological problems. Objective: This study aims to understand the factors associated with gynaecological morbidities and treatment-seeking behaviour among women in Eastern India. Data and Method: The Analysis is based on the fifth round of the National Family Health Survey (2019-2021). Bivariate and regression analysis is used to analyse the factors associated with gynaecological morbidity and treatment-seeking behaviour among women in eastern India. Results: Among all the eastern states, Bihar (31.02%) is having maximum gynaecological morbidities, followed by West Bengal (20.39%), Jharkhand (19.89%) and Odisha (10.73%). Compared to gynaecological morbidities, treatment-seeking behaviour is less. Among those who reported gynaecological morbidities, 2.96% sought treatment, with 1.92% opting for private healthcare facilities and 1.21% opting for public healthcare facilities. Despite reporting higher percentage of gynaecological morbidity, women with less education and lower socioeconomic strata sought treatment in lower proportions. Women who perceived distance as a barrier to health care sought fewer treatments. The place of residence, religion, wealth index, women's age, education, working status and media exposure are strongly associated with different gynaecological morbidities of women in eastern India. Higher educational attainment, increasing age and mass media exposure depicts higher odds for gynaecological morbidities among women. Conclusion: The prevalence of gynaecological morbidity and treatment-seeking vary considerably by socioeconomic characteristics. Multifaceted interventions are required to promote awareness about healthcare-seeking behaviours for gynaecological morbidities, particularly in rural regions.

Unraveling the Impact of Nutrition Intake: Predicting Anemia among Children with Machine Learning and Explainable AI

Miss. Harleen Kaur Gulati and Md. Asif Khan

Children are seen as an invaluable asset in any nation whose well-being directly reflects the health of the nation as a whole. It is no secret that many factors influence a child's health and anaemia is a significant one. Anemia is one of the global health challenges engulfing both developing and developed nations with India holding a substantial share among the developing nations. Around 1.62 billion global population is affected with the highest prevalence among preschool children. Psychomotor retardation, one of the harmful effects of anemia decreases learning ability and causes behavioral delays, low immunity, and susceptibility to various infections among children. Therefore, an automated prediction model is proposed for anemia among children aged 6-23 months using a machine learning approach to the latest available NFHS-5 data. A total of 62,130 children are taken into consideration. Special emphasis is given to anemia caused by inadequate nourishment for hemoglobin and red blood cells synthesis. We used ML algorithms such as Logistic Regression, Support Vector Machines (SVM), Naive Bayes (NB), Decision Trees, Random Forest, Gradient Boosting, Penalized Regression, and a combination of approaches called Ensemble Learning to predict the anemia status. Further, explainable AI has been integrated using techniques like LIME, and SHAP for individual predictions and highlighting which features influenced the predictions and how. This was followed by the assessment of algorithms in terms of sensitivity, specificity, and F1 score. Achieving a receiver operating characteristic value exceeding 72% during training and an accuracy rate surpassing 69% during testing provides strong grounds for asserting that nutrients intake, including Iron, Vitamin A, Vitamin B12, and other complementary foods, significantly contribute to identifying anemic conditions in children. Additionally, determinants such as the mother's anemic condition, the child's age, maternal age and education, and religion are pivotal factors in this identification process.

The role of frontline workers in the contraceptive use dynamics in Bihar and Uttar Pradesh: Findings from longitudinal survey

Mr. Abhishek Kumar and A J Francis Zavier

Frontline health workers (FLWs) are effective drivers in improving family planning indicators, including maternal and child health. However, the existing studies established the relationship either using the aggregate level data (in large-scale surveys FLWs outreach for family planning is asked to non-user women) or using the cross-sectional data. The present study establishes the causal relationship between FLWs outreach and contraceptive use dynamics adoption, continuation, and discontinuation in Bihar and Uttar Pradesh. The study analyzed longitudinal data collected in two rounds, in 2021-22 and 2022-23, from 1,351 and 2,041 married women aged 15-49 in Bihar and Uttar Pradesh, respectively. The outcome variable was whether women continued to use contraception from round-1 or became new users at round-2 among women who were non-sterilized and fecund at round-1. The main explanatory variables used were 1) at the individual level, ASHA's discussion with women for family planning, and 2) at the community level, whether women staying in PSUs where ASHAs promoted for both short and long-acting contraceptive methods. Both descriptive and multivariate analyses were used in the analysis. Results showed that 11-16% of the women either continued their contraceptive use from round-1 or started using a modern contraceptive method at round-2 in both states. While 43-53% of women in both states reported that FLWs interacted during last 12 months at both rounds, just 7-11% of women reported that FLWs discussed family planning methods with them. However, if women who discussed FP with FLWs at both times or met at round-2 were more likely to use contraception. Moreover, in Uttar Pradesh, women residing in PSUs where FLWs are promoted for both short and long-acting contraceptive methods, contraceptive use is higher (odds ratio 1.93, $p<=0.050$). The importance of FLWs visits and most importantly discussion regarding FP is crucial in contraceptive adoption use and continuation.

Prevalence and Risk Factors of Hypertension in India and its states: Insights from National Family Health Survey (2019-21)

Mr. Raza Mohammad And Dhananjay W. Bansod

Hypertension, a major non-communicable disease, is responsible for a significant number of global deaths, including approximately 17.9 million yearly. The World Health Organization (WHO) estimates that 19% of global deaths are attributed to hypertension. India, with a population of over 1.3 billion, is facing a serious challenge in combating this silent killer. This study aims to analyze the prevalence of hypertension in India and explore its associated risk factors using data from the fifth National Family Health Survey (NFHS-5). NFHS-5 collected data from 636,699 households across all states and union territories. Blood pressure measurements were taken for men and women aged 15 and above using standardized protocols. Logistic regression has been used to identify predictors of hypertension. The overall prevalence of hypertension in India was found to be 22.6%, with higher in men (24.1%) than women (21.2%). Prevalence increased with age, reaching 48.4% in individuals aged 60 and above. Urban residents had a slightly higher prevalence (25%) than rural residents (21.4%). Regional variations were observed, with the highest prevalence in Sikkim (37.9%) and the lowest in Rajasthan (16.5%). Increasing age, urban residence, belonging to certain religions, and belonging to Scheduled Tribe (ST) were associated with a higher likelihood of hypertension. Individuals in the richest quintile were more likely to have hypertension. Alcohol consumption exhibited a positive association. BMI was a significant risk factor, with overweight and obese individuals having higher odds of hypertension. It is a significant health burden in India, affecting both men and women. Age, BMI, urban residence, alcohol use, and education level emerged as major predictors. Policymakers must focus on preventive measures, targeting lifestyle changes and improved access to healthcare, particularly in rural areas. By addressing these risk factors, India can make significant progress in controlling hypertension and reducing its impact on public health.

Mutation in West Bengal's migration pattern: Bengalis looking south

Dr. Rabiul Ansary

West Bengal, a conventional state for migrant workers in India since colonial era, mutated to net sender of migrants as its economy failed to keep pace with new emerging centres of growth i.e., southern Indian states in post reform era. Owing to squeeze on farm incomes, rural to urban migration within the state has seen quantum jump. While consistent decline of job opportunities in conventional centres like Kolkata, Asansol, Durgapur and others have started pushing away the inter-state migrants to other states. On top of this, Bengalis have started venturing out of the state to find jobs. Saturation of opportunities in old urban centres such as Delhi and Mumbai and rising sub-nationalism has given way to new centres where migrants from Eastern Indian states including West Bengal are increasingly moving to. Southern Indian states have begun to emerge as new destination for migrant workers, as they feel more included and secure vis-Ã -vis rich states of north and Western India.

Pattern and Predictor of Educational Hypogamy in India

Mr. Priyotosh Laha and Dr. Manas Ranjan Pradhan

The global mate selection scenario has undergone significant changes. Assortative mating is the tendency of two partners to be matched systematically based on one or more characteristics. In assortative mating hypergamy conveys the tendency of women to marry up while hypogamy means marrying down. India is a culturally heterogamous society by caste, religion, language and ethnicity. The conflict between rising educational level among young adults and rigidity of social system transitioned the traditional scenario of marriage market and assortative mating. Educational hypogamy among

women is showing an increasing trend a parallel phenomenon in the context of increasing female literacy. Based on NFHS-5 data, this study elucidates the pattern and predictors of educational hypogamy in India. Binary logistic regression and ordered logistic regression were applied. The study found that a sizable amount of women is in educationally hypogamous unions and there is an upward trend in its prevalence in India. Results also shown that age at marriage, caste and occupation are significant predictors of educational hypogamy in India. The pattern of educational hypogamy is such that as the level of education in women increases, they simply do not choose husbands with huge education gap; rather they choose among those who are just below their education level. In educational hypogamy, caste hypergamy is dominant which implies that women who marry men with lower educational levels are more likely to negotiate their higher education for the husband's higher caste status. We argue that though expansion of women education guides educational hypogamy in India, a stronghold of the traditional caste system still exists. Hopefully educational hypogamy influence the socio-economic resources and decision making of women in family dynamics and might influence the traditional male dominated to gender neutral relationship.

Influence of Women's Autonomy and Mass Media Exposure on Menstrual Hygiene Practices in India: A Panel Regression Analysis

Miss. Samyakami Kaibarta, Samyakami Kaibarta, Somnatha Mandal Panskura, Dr. Suman Paul and Dr. Subhasis Bhattacharya

Objective: This study aims to investigate the variation in hygienic scores across different Indian states and union territories over different time periods. Additionally, it seeks to examine the influence of women's decision-making authority and exposure to mass media on hygiene scores. Data and Method: The study analyzes data from 489,013 women aged 15-24 obtained from NFHS 4 and 5, representing various Indian states and union territories. A hygienic score matrix is constructed to categorize states into four groups based on hygiene practices. Panel regression analysis is employed to assess the impact of women's autonomy and mass media exposure on hygiene scores. Results: Evaluation of the hygiene score matrix reveals that certain states consistently exhibit commendable hygiene scores in both NFHS rounds. Conversely, states located in central India consistently maintain poor hygiene scores, indicating hygiene practice challenges. The random effect model analysis indicates that women who independently visit markets tend to have higher hygiene scores compared to those with decision-making authority in healthcare and household purchases, and those allowed to access healthcare facilities alone. Regarding mass media exposure, women who watch television display greater awareness of hygienic practices than those who read newspapers or listen to the radio. Conclusion: This study highlights a promising future prospect: women with decision-making autonomy and exposure to television advertisements tend to demonstrate heightened awareness of menstrual health. This awareness translates into the adoption of more hygienic practices during menstruation.

Pattern and socio-demographic determinants of domestic violence experienced by ever-married women of India: National Family Health Survey-5

Miss. Udeechee and Shareeka Senapati

Background: Domestic violence against women is a global issue. It is not only violation of basic human rights but also associated with health burdens leading to health consequences. This study aims to estimate the prevalence of different types of domestic violence in India and highlight the various sociology-demographic characteristics associated with it. The data from NFHS-5 using domestic violence module was taken on 72,320 ever married women age 15-49 years. Results: As per NFHS-5, weighted prevalence of physical, sexual, emotional and any type of violence ever-experienced by women were 23.83%, 4.87%, 11.07% and 26.88% respectively. Binary logistic regression analysis women's and partner's education, socioeconomic status, women empowerment, urban-rural residence, partner's controlling behaviors as major significant predictors of domestic violence. Conclusion:

As there is still high prevalence of domestic violence in different regions across the country. It is necessary to offer adequate screening and counseling services for the women and the couples, especially in health-care sector so that they can raise voices against it and are offered timely help to prevent long-term physical and mental health consequences.

Morbidity Pattern and Health Seeking Behavior in Urban Slums of Bankura City, West Bengal

Dr. Grace Bahalen Mundu and Subhadip Mandal

Background: Urban slum dwellers have many health issues. Study of morbidity pattern and health seeking behaviour of slum dwellers is essential for effective interventions and policy making. Objective: To study the morbidity patterns and health-seeking behaviour among the slum dwellers in Bankura District. Methodology: Two urban slums have been selected on the basis of population size, i.e. Asarampara Uttar and Dhibarpara Bustee. Primary data collected from 180 slum dwellers by using structured interview schedule. Univariate and bivariate analysis has been performed. Results: Study reveals that 71 percent of respondents were males. Nearly three-fourth of the respondents were above 50 years and 55 percent were illiterate or literate upto primary level. Majority of them uses public toilets and open defecation. Eighty-four percent were using municipality tap or tube well. Majority suffered from non-communicable diseases- diabetes, high blood-pressure, lung and kidney diseases and respiratory diseases. Eighty-nine percent of the slum dwellers reported that in last six month they had suffered from any diseases, such as viral fever, typhoid, dengue, malaria, diarrhoea and cholera. Ninety-three percent of them visit govt. hospitals for treatment. Conclusion: Understanding morbidity patterns and health seeking behaviour contributes to the development of effective policies and interventions that improve the well-being of slum communities.

Decoding Consumption Expenditure Inequality in India: An Insight from NSSO Rounds 5 Poverty, Income inequality and health

Mr. Nilesh Yadav and Dr. Suryakant Yadav

As cities grow and more young people work, there is still a big difference between what rich and poor families can afford. Instead of solely focusing on income-based measures of inequality, our research delves into India's consumption expenditure inequality leveraging data from 50th to 68th rounds of the National sample survey office (NSSO). The study categorizes the consumption expenditure into health, education, food and other non-food items offering a view of the diversification of consumption patterns. In the study spanning the 50th to 68th rounds, India's consumption expenditure revealed distinct patterns. Food spending inequality rose slightly, as indicated by the Gini coefficient's increase from 0.2566 to 0.2659. Non-food expenses, especially on luxury items and services, displayed a steeper rise in inequality. Notably, education showed significant spending disparities, despite a small drop in inequality over time. Health expenditure, on the other hand, showed a positive trend with declining inequality, hinting at improved healthcare access or policies. Durable goods, items like appliances, became more central in driving inequality, especially in the later rounds, indicating a societal shift towards such products. Transport-related expenses impacted inequality notably in earlier rounds but were surpassed by durable goods by the 68th round. As dairy expenses slightly increased in the 68th round after a decline, it might be due to changing consumption habits or rising prices. Cereal costs showed decreasing inequality, suggesting more universal access to these essential foods. Crucially, as spending on durable goods, education, and medical facilities increased, so did inequality. But basic items like cereals might help in narrowing the economic divide. The 68th round emphasized potential health spending gaps, highlighting areas for policy interventions. The study emphasizes to provide a comprehensive understanding of India's evolving consumption landscape and its implications for inequality.

Intimate Partner Violence during pregnancy and association with Adverse Birth Outcomes: Findings from the National Family Health Survey

Miss. Madhuri

Background: The study aimed to investigate the factors associated with adverse birth outcomes and intimate partner violence (IPV) and examine the impact of IPV on adverse birth outcomes in India. Method: The study utilized data from India's most recent national family health survey (NFHS-5), employing a cross-sectional design. The analysis included 59,746 women in the domestic violence module with at least one child within the five years preceding the study. Binary logistic regression was conducted to examine the unadjusted effects of explanatory variables on adverse birth outcomes. Log logistic regression analysis calculates adjusted odds ratios (ORs) with corresponding 95% confidence intervals (CIs). Results: The study findings revealed a high prevalence of adverse birth outcomes among rural women, working women, and women of lower wealth status. These groups were likelier to experience intimate partner violence and adverse birth outcomes. The analysis also indicated that socio-economic factors, such as poverty, education level, and the partner's alcohol consumption, were strongly associated with the risk of IPV and adverse pregnancy outcomes. This research highlights the complex interplay of demographic factors and determinants in the prevalence of IPV during pregnancy and its adverse consequences on birth outcomes among Indian women. Conclusion: The study highlights the importance of prioritizing follow-up care for women and improving their socio-economic conditions. Additionally, involving women in reproductive health decision-making processes is crucial. The findings underscore the need for comprehensive social and policy interventions to support vulnerable women. Addressing socio-economic factors and empowering women to participate in healthcare decision-making can mitigate the risk of adverse birth outcomes and intimate partner violence among women in India.

The Impact of Aging on Lung Diseases in India: Exploring the Prevalence, Predictors, and Association of Asthma and COPD with Geriatric Syndrome

Miss. Aditi Chakraborty and Dr. Suryakant Yadav

As India ages, the burden of respiratory disorders is poised to rise, necessitating a nuanced understanding of the relationship between aging and lung health. It thus becomes crucial to prioritize preventing and managing lung diseases among older adults in India. The study aims to understand the reasons behind the increasing burden of lung diseases among older people in India. It uses data from LASI Wave 1 to examine chronic lung conditions like Asthma and COPD in individuals aged 45 and above. The study provides background information about the participants and shows the rates of unadjusted COPD and Asthma cases based on different factors. It uses statistical methods like Poisson regression to understand the factors contributing to these diseases and logistic regression to explore their connections with geriatric syndromes, both before and after adjusting for other factors. The results reveal that in India, the prevalence of asthma is 4.38% and COPD is 2.1%, and these rates increase with age. Males have a higher prevalence, and there is a clear link between wealth and prevalence rates. The analysis highlights how age influences asthma risks, while also showing intricate associations between Asthma and COPD and geriatric syndromes, including age, gender, wealth, religion, and health status. In conclusion, this study reveals the complex connections between lung diseases, aging, and geriatric syndromes in India. With the growing older population, we need specific actions and thorough healthcare plans to address this intricate relationship. The study emphasizes the importance of understanding these complexities to make well-informed policies, equipping healthcare professionals to devise effective measures that safeguard respiratory health and overall well-being within India's diverse aging population.

Determinants of fertility stall in India: A State Level Analysis, 1992/93 to 2019/21

Mr. Nowaj Sharif and Dr. Bhaswati Das

India's demographic scenario is a highly concerning issue for researchers and policymakers throughout the world. Here fertility declined steadily for several decades at a slower pace. In an effort to identify the actual scenario of a slower fertility pace, this study investigates the fertility stall condition at the state level of India from 1992/93 to 2019/21. Fertility stall is a situation where fertility is stagnant or increased after starting transitions. Using data collected by 1992/93, 1998/99, 2005/06, 2015/16, and 2019/21 rounds of National Family Health Survey (NFHS), the study indicates that eight states during NFHS II to III two states during NFHS III to IV and five states during NFHS IV to V experienced fertility stall. In general, increasing poor households, U-5 death, declining women in paid employment considering the socio-economic category, higher son preference from the reproductive preference category, and increasing adolescent childbearing, unmet need for family planning from the family planning category significantly influence the fertility stall in Indian states. In spatial pattern, socio-economic variables are a more concerning issue for fertility stalls in north-eastern states, meanwhile, son preference is more associated with the stall states of low fertility provinces of southern India. This indicates that reaching low fertility in India will increase the likelihood of son preferences in the future. No significant link was observed between the presence of stall and trend in modern contraception and the desire for more family size, though these factors were highly crucial for fertility stall in previous research.

Breastfeeding Practices among Urban Poor Women: A Comparative Study of Working and Non-Working Women in Metropolitan City of Kolkata

Dr. Sasmita Jena

The World Health Organization (WHO) recommends six months of exclusive breast-feeding. Despite documented health, social and economic benefits, the practice of exclusive breast-feeding is quite low and information on influencing factors is limited especially from slum settlements. The aim of this research is to assess the prevalence and evaluate factors associated with early cessation of exclusive breastfeeding in the first six months of life among mothers in an urban slum in Kolkata Metropolitan City, West Bengal, India. A cross sectional study was carried out among 400 mothers (200 each working and non-working women) having infants aged 0-2 years. Purposive sampling technique was used to select the study population. Exclusive breastfeeding practice was the dependent variable and all relevant information was collected using a semi-structured schedule and Focus Group Discussions. Crosstabulation, chi-square test and binary logistic regression was used to determine the factors significantly associated with exclusive breastfeeding practices. The findings of the study concluded that non-working mothers had more knowledge than working mothers on breastfeeding. Whereas both working and nonworking mothers had almost same level of practice on breastfeeding. However, non-working women practices exclusive breastfeeding practices due to availability of time compared to working mothers.

Status of Medical Attainment and Hospitalization before Death among Tribal Communities in India: A Comparative analysis from NSSO-71st & 75th Round

Dr. Shatrughan Prasad, Dr. Harisingh Gour and Dr. Rajesh Raushan

According to the most recent global study, there is clear evidence of inferior health and social outcomes among indigenous/tribal populations when compared to non-tribal communities. Tribal communities often experience lower levels of health status, face challenges in healthcare-seeking behavior, and have limited accessibility to healthcare services. This study found that indigenous/tribal populations exhibited lower rates of medical attainment and hospitalization prior to death in comparison to the non-

tribal group. The research findings also indicate that tribal groups, particularly among the elderly population, have significantly lower rates of hospitalization compared to the non-STs/SCs group in India. The reasons for this lower rate of hospitalization are 'Patient Died before Taking to Hospitals' and 'Ailment was not Considered Serious Enough'. However, the main objective of this study was to explore the status of medical attention, reasons for not receiving medical care, and hospitalization prior to death within the tribal communities. To achieve the predetermined objectives, this study utilized the data from the 71st (2014) and 75th(2018) rounds of the National Sample Survey (NSS), which are nationally representative surveys on social consumption on health (SCH). Descriptive statistics were employed to analyze the patterns of medical attention and hospitalization prior to death among tribal populations in India. All statistical analyses were performed using the STATA 14 software package.

Decomposition of Life Expectancy at birth in India - Age-Cause Specific Factors and Gender Disparities

Miss. Aiswarya S

Life expectancy at birth is a critical measure of a population's health and well-being. India has seen significant life expectancy growth in the last two decades. However, these improvements vary across states and age groups due to diverse causes of death among different ages. This study aims to assess the the changes in life expectancy at birth in India and its states from 2000 to 2020. It also analyzes the contribution of different age groups and selected cause-of-death to the life expectancy at birth difference between 2000 and 2020. Additionally, this study conduct age and cause-specific decomposition of the sex difference in life expectancy at birth for the years 2000 and 2020. It uses data from the Sample Registration System and the Global Burden of Disease Study in the period 2000 and 2020 to analyse mortality trends and causes of death. The methodologies include Arriaga age-and cause specific decomposition to decompose the difference in life expectancy into contributions of ages and causes of death (Arriaga, 1984). The results shows that male life expectancy rose by 7.6 years (61.24 to 68.84) and female life expectancy by 8.84 years (63.4 to 72.24) between 2000 and 2020. Most of the rise in life expectancy at birth results from lowered mortality rates in infants and young children. Furthermore, Infectious and parasitic diseases were the major positive contributor to the gap in life expectancy at birth between 2000 and 2020, for both sexes. And Cardiovascular diseases were the major positive contributor to the gender gap in life expectancy at birth between males and females in 2000 and 2020 with an increased contribution by 2020. This finding highlights the need for policies and interventions that are specifically targeted towards specific age groups and certain causes of death for improving life expectancy.

Prevalence And Factors Affecting Primary Infertility Among Currently Married Women in India

Miss. BHAVYA SREE S B

Primary infertility is a worldwide concern that affects a couple or an individual. So, it must be studied and effective measures to reduce the risk must be adopted. The present study aimed to analyse the prevalence of primary infertility among Indian women and determine the contributing factors. Data from the recent round of National Family Health Survey has been used to analyse the trend and data from NFHS-5 was used to analyse the levels and factors associated with primary infertility. From the total woman sample, those who are currently married, for more than five years and women between 20-49 age were selected. Women who ever got pregnant, have used any contraceptives, or got termination has been excluded and women who have no children ever born were selected. Univariate and bivariate analyses were used. Binary logistic regression was used to find the factors associated with primary infertility. The potential determinants of primary infertility were classified into three: demographic and socio-economic characteristics, behavioural characteristics, and lifestyle diseases.

From the results, it has been observed that as the age at marriage increases chance of primary infertility increases, and also, as education increases the percentage of infertility increases. Those women who drink alcohol and consume aerated drinks daily have a higher chance of being infertile. Women belonging to the Southern region have more chance of getting infertility than the rest of the regions. This study found that women, who are suffering from thyroid have a higher chance of primary infertility. This study arrived at a conclusion that age at marriage, education, economic background, and lifestyle behaviours are the significant contributors to primary infertility.

A Study on Transgender in India with Special Reference to Uttar Pradesh and Delhi

Miss. Kiran Badoni Pushpa M Savadatti

Gender and sex are two different concepts. Within Indian society, there are several individuals whose sex and gender do not match. These people are transgender. The major objectives of the study are to study the state-wise distribution of the transgender population in India with special reference to Uttar Pradesh and Delhi. To find out the literacy and education status of transgender and to highlight the major health issues faced by Transgender in India and describe the employment status of transgender in the selected study area. This study is descriptive cum exploratory in nature based on purely secondary data. This study focuses on the transgender population living in Uttar Pradesh and NCR Delhi based on the population data. The major findings of the study show that the Transgender population has increased over the point of time. Transgender are also literate and educated. But their employment is mainly in non-economic activities such as Sex work, Badhai toli/Dancing and Singing, Begging, and others. Many transgenders faced physical as well as mental health issues such as HIV infection, physical violence and sexual violence, depression, anxiety, and panic attacks. The main conclusion of the study is that there is clear evidence of the transgender population in India but so far, they do not have basic amenities and acceptance from society.

Subnational variations in Life expectancy at Birth in India: Evidence from NFHS and SRS data

Mr. Pawan Kumar Yadav and Dr. Suryakant Yadav

Background: Measuring life expectancy can assist in comprehending how the COVID-19 pandemic has affected the mortality estimates in the Indian population. The present study aims to study the life expectancy at birth at the national and subnational levels before and during the COVID-19 pandemic using the NFHS and SRS data. Methods: Life expectancy at birth (e_0) was computed for the non-pandemic and pandemic years from NFHS (2015-16), SRS (2015) and NFHS (2019-21), SRS (2020) respectively at the national and Subnational level in India. Using NFHS data for the 36 states and SRS data for the 22 states, the study calculates e_0 by total, male and female population. Results: The e_0 for male and female decline from 64.3 years and 69.2 years in 2015-16 to 62.9 years and 68.9 years in 2019-21. The e_0 shows a drop of approximately 1.4 years for males and 0.3 years for females in the pandemic year 2019-21 when compared to the non-pandemic year 2015-16. At the subnational level e_0 shows a decline for 22 states in person, 23 states in males and 21 states in females in the pandemic year 2019-21 as compared to the non-pandemic years 2015-16. The findings shows significant losses in e_0 for males than females in the pandemic year as compared to the non-pandemic year at the subnational level in India. Conclusion: COVID-19 pandemic has decreased e_0 in the pandemic year 2019-21 at the national and subnational level in India. COVID-19 had a significant impact on the age pattern of mortality for many states and male, female population and delayed the mortality transition in India.

Determinants of Health Seeking Behaviour Among Families in Urban Patna

Miss. Puja Krishna and Papia Raj

Investigating the determinants and factors associated with health seeking behaviour is pivotal for developing countries where improved access to quality healthcare services is an important health policy goal. Health seeking behaviour broadly refers to the sequence of remedial actions undertaken by an individual to overcome perceived ill-health. While studies in the past have assessed health seeking behaviour of different population subgroups, there is little known about the health seeking behaviour of families which is considered as a crucial social context within which any illness occurs and health-related decisions are made. Therefore, the present study explores health seeking behaviour of families residing in six administrative divisions of Patna Municipal Corporation (PMC), with a focus on understanding components that impact their health decisions and pattern of healthcare utilization. Purposive snowball sampling technique has been used for recruiting 50 samples from each administrative division, and data were collected through face-to-face interviews. Findings from the study reveal that depending upon the perceived severity of health problems, family members use multiple methods for seeking treatment. The majority of participants reported using home remedies and buying medicines from drugstores as their first choice during acute health issues such as viral fever, cough, and cold, and gastrointestinal problems. Consultation with health professionals was more evident in the case of chronic health problems and emergencies. Higher dependence on private health facilities over public was indicated considering ease of appointment and quality of health services. The probability of when and where to seek treatment was influenced by various aspects such as family income, health insurance coverage, distance to health facilities, internet reviews of health facilities, and the decision of the household head. Findings from this study can be relevant to health planners, and government or non-government organizations aiming to improve access to and the use of health services among the urban population.

Understanding an Association between Occupation and NCDs among elderly in India

Mr. Krishhna Dornalpalle

The aim of this study is to examine the prevalence of CVD, Diabetes, and Chronic Lung Diseases by occupation, health, and sociodemographic characteristics among older adults in India. Additionally, the study aims to examine the association of occupation of the elderly in India. Data and Methods: The study uses secondary data (LASI, WAVE-I, 2017-2018). Analysis based on a sample of older adults aged 45 years and above. Bivariate and multiple regression analyses have been carried out to understand the association between Occupation and selected NCDs . Further Propensity score matching is used to understand the effect of Occupations on the prevalence of NCDs in Older Adults in India. Findings: Study shows that the prevalence of NCDs varies across different occupational categories. Non-workers have the highest prevalence of CVD at 33.79%, followed by Legislators and Professional Clerks at 31.13%, and Service, Craft, Plant, and Machine Workers have the lowest prevalence of CVD at 18%. The prevalence of diabetes is highest among Legislators, Professionals, and Clerks at 22.91%, followed by non-workers at 13.96%. Service, Craft, Plant, Machine Workers have the lowest prevalence of diabetes (6.38%). Pertaining to Chronic lung diseases have the highest prevalence among Legislators and Professional Clerks at 7.27%, while Agriculture, Fishery, and Elementary (5.56%). Correspondingly, the occupational grouping of Service, Craft, Plant, and Machine Workers has the lowest prevalence of chronic lung diseases (4.81%). Noticeable that the after matching of the Service/Craft/Plant and machine-related Workers has shown a significant increase in the prevalence of CVD and Chronic Lung Diseases. The study revealed that occupation stands as an autonomous risk determinant for Chronic Diseases, Policymakers and Health Care Providers should think about occupational health and labor laws; there must be a multi-sectorial approach based on policies and direction to be aware of such consequences in India.

Hospitalization expenditure on non-communicable diseases among tribal populations in India: A repeated cross-sectional analysis of National Sample Survey Data, 2004 to 2018

Dr. Jeetendra Yadav

Background: On May 3, 2023, the Government of India renamed the National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS) to the National Programme for Prevention and Control of Non-Communicable Diseases (NP-NCD). Previous studies on NCDs have highlighted that tribal people have poor health and huge unmet needs. Aim: This study examined the out-of-pocket (OOPE), healthcare burden, catastrophic health expenditure, hardship financing, impoverishment effects, and impact of health insurance on hospitalization expenditure on NCDs incurred by tribal populations in India. Data and methods: Data from three rounds of National Statistic Surveys 60th 2004-05, 71st 2013-14, and 75th 2017-18. Descriptive statistics, bivariate estimates, and multivariate models were performed to calculate the OOPE, healthcare burden (HCB), catastrophic health expenditure (CHE), hardship financing, and impoverishment using standard definitions at December 2019 price values. Results: Over 50% of the NCD cases are seen in the economically productive age group (15â€"59 years), with age-group 15-35 age group showing a substantial impact of OOPE, HCB, CHE, and poverty impact across all three rounds. Illiterate patients, those availing private hospitals for NCD treatment, and with cancer had a higher OOPE, healthcare burden, hardship financing, catastrophic health expenditure, and poverty impact. Only 20.4.5% (2014) and 35.4% (2018) are covered by any kind of public health insurance scheme. Propensity Score Matching analysis showed those with health insurance were less likely to be exposed to CHE and impoverishment effects due to NCD hospitalisation expenditure. Conclusion: The present analysis over 15 years period helps to understand the trends in the financial burden of NCD hospitalisation among tribal households and provides evidence to policymakers for suitable policy interventions.

An Assessment of Public Health Sector in India and State level Performance in the light of the COVID-19 Pandemic

Mr. Arnob Paul and & Kanchan Devi

The COVID-19 Pandemic is putting a spotlight on the existing health care system of the world and also emphasized on the emergency preparedness and response to tackle the situation. With the burden of nearly 1.3 million populations the covid-19 pandemic poses two important challenges for India: balancing healthcare and the economy. The COVID-19 also provides opportunities to the states for some structural changes to improve the public health system. This paper tries (i) to address the public health system of India with reference to Covid-19 pandemic; (ii) to have an idea on the out-pocket expenditure by the population on health, and (iii) to know the performance of the different states in providing and maintaining the healthcare services. To meet these objectives, the secondary sources of data is used where descriptive methodology has been adopted by carrying out literature review; the NSSO 71st Round (Social Consumption: Health) unit-level data is also used; finally, to meet the third objective of the paper, state-wise public health expenditure as a percentage of GSDP as explanatory variable is used and developed an index of health outcome variables and is used as dependent variables. The study found that there is a regional variation in the public health care system in India. It also found that the Covid-19 vulnerability is very closely related to demographic and epidemiological character of a region. Covid-19 pandemic results in the rise of public health expenditure of various states in India. Further, the out of pocked expenditure comprises 65% in health spending which is very high compared to 32% of China, 38% of Srilanka, and 60% of Nepal. Finally, the result regression represents that the Number of doctors per 10000 population, hospital beds per 1000 population, health expenditure as a percentage of GSDP are significant determinants of health outcome index.

Provision of Employee State Insurance Scheme (ESIS) and its implementation in steel industry workers with references to their occupational healthcare

Mr. Parthsarathi Dehury and Ranjit Kumar Dehury

The provision of the Employee State Insurance Scheme (ESIS) for occupational health hazards among Indian steel industry workers constitutes an important aspect of ensuring their health and well-being and safeguarding rights. This paper investigates the significance, implementation, and benefits of the ESIS for occupational healthcare within the steel industry. The study also assesses the workers' knowledge of ESIS and their employment contract details. A cross-sessional survey was conducted among steel industry workers in Odisha, India. The study was conducted with 425 industry workers by adopting the Population Proportion to Size (PPS) technique. The primary data was taken from a steel industry situated in Angul district of Odisha. The study used a structured interview scheduled with unorganised male workers to assess the provision of ESIS and its implementations for occupational healthcare. Statistical Package for Social Sciences software (SPSS version 25.0) was used in the analysis process by using the univariate and bivariate models to assess the objectives. The study showed 59.1% of respondents were in an employment contract. Sixty-five percent of the respondents had knowledge about ESIS, and 58.6 % enrolled under the ESIS scheme. The demographic factors of respondents vary in their benefits for the ESIS. Education, technical education, occupation, type of work, household income and working hours were strongly associated with the respondents' knowledge of ESIS and their enrolment under the scheme. Only 34 % of respondents are getting ESIS benefits during the treatment and 22 % were satisfied with ESIS benefits. The lengthy process and many document requirements are major barriers to not getting benefits from ESIS during OHH. Addressing these challenges requires a concerted effort involving policy reforms and awareness campaigns for knowledge promotions. This is required a collaborative initiative between employer and authority to ensure the benefits of the scheme which contribute to their occupational healthcare.

CHANDRASHEKHRAN AWARD PRESENTATION ABSTRACT

Gender disparities and the impact of multimorbidity on the prevalence of insomnia symptoms among the elderly in India

Miss. Santrah Reena John

The demographic makeup of India is shifting due to an increase in elderly persons, along with a rise in their age-related health problems. One such understated ageing-related issue is insomnia. The study's objective is to look into gender variations in insomnia symptoms among India's elderly population while analyzing the covariates that contribute to these disparities. This study also seeks to determine the independent impact of multi-morbidity as a risk factor for the development of insomnia symptoms, while also bearing in mind the cascade of disruptions generated by the co-existence of multi-morbidity and insomnia symptoms in the elderly population. The study employed cross-sectional data from the Longitudinal Ageing Study in India (LASI), Wave-1 (2017-2018), encompassing 31,464 elderly individuals (males 15,098 and females 16,366) that were 60 years of age or older. Bi-variate analysis and descriptive statistics were applied to determine the prevalence of insomnia symptoms. The covariates that contributed to the change in insomnia symptoms by gender were identified through the multivariate decomposition analysis. Additionally, while controlling for the chosen background factors, binary logistic regression and Propensity Score Matching (PSM) techniques were used to explore the independent effect of multi-morbidity on insomnia symptoms. In India, the prevalence of insomnia symptoms is 36.08% overall, with 31.48% of men and 40.23% of women reporting having them. The results of the multi-variable decomposition analysis showed that the gender difference in the prevalence of insomnia symptoms was 60.47% owing to the overall change in characteristics, whilst the remaining 39.53% was due to the difference in the effect of characteristics. Even when confounding variables are taken into account, multi-morbidity consistently retains a statistically significant association with an elevated likelihood of exhibiting insomnia symptoms. The risk of experiencing insomnia symptoms was 8.2% higher for elderly persons with multi-morbidity, according to propensity score matching results.

Effect of elimination of cardiovascular diseases on life expectancy and disability free life expectancy among elderly in India

Miss. Abna A

Cardiovascular disease (CVD) encompasses heart and blood vessel disorders that escalate with age. Elderly individuals face elevated CVD risks due to aging and cumulative lifestyle effects. The WHO approximates that India's current CVD burden may lead to a $237 billion loss in a decade. Eradicating CVD could thus profoundly bolster life expectancy and disability-free life expectancy (DFLE) in the elderly globally. Objectives are to calculate the life expectancy and gain in life expectancy at birth and at older ages after eliminating CVD in India and its states and to calculate DFLE and gain in DFLE after eliminating CVD among elderly in India and its states. Data on age-specific death rates were sourced from India's Sample Registration System 2019 report, while CVD prevalence came from the Longitudinal Ageing Survey of India (2017-18). Cardiovascular deaths were obtained from the Global Burden of Disease (GBD) 2019 study, and mid-year 2019 population estimates were derived from GBD-2019 Population Estimates. Using GBD-2019 data, a life table eliminating CVD-related deaths was constructed. Disability calculations relied on LASI data, and life expectancy gains were determined following the article by Shuji Hashimoto. DFLE computations followed Sullivan's method and its cause elimination is done by following the article by Alain Colvez and Madeleine Blanchet. After CVD elimination, male and female life expectancies at birth rose to 70.04 and 72.92 years, up from 68.94 and 72.10 years, respectively. Although no life expectancy gains emerged at age 70, substantial DFLE gains were evident at ages 50 and 70. Northern and Southern states outperformed Central and Eastern counterparts in both life expectancy and DFLE. Mitigating CVD impacts by delaying onset can enhance DFLE. Screening and early CVD detection interventions are vital. Health promotion targeting improved behaviour, particularly in the 40s and 50s, is imperative.

Exploring the Nexus of Caste and Multidimensional Poverty in India's Elderly Population

Mr. Binayak Kandapan

The caste system, deeply ingrained in India, has profoundly influenced various aspects of society. Historically, it has compelled individuals from some specific communities to endure discrimination, resulting in their marginalization. Using the Alkire-Foster method, this study delves into the impact of caste on multidimensional poverty among the elderly in India. This analysis draws from Longitudinal Ageing Study in India, 2017-18. Multiple logistic regression model was fitted to identify the associated factors. The construction of elderly multidimensional poverty index (MPI) includes 21 indicators across six dimensions of well-being. The findings underscore that caste strongly affects poverty levels among the elderly, with Scheduled Castes (SCs) having the highest incidence and intensity, followed by Scheduled Tribes (STs). This contrasts with previous studies on the entire population and the children. The contribution of SCs to the national MPI is larger than its population share. Economic security, functional ability and psychological well-being dimensions contribute the most, contributing about two-thirds to the MPI for all castes. Among the indicators, depressive symptoms, employment or pension, literacy and executive functioning, and health insurance contribute the most. Elderly individuals who were 75+, women, unmarried, rural residents, and living alone or with only one co-resident face a higher risk of experiencing multidimensional poverty. There is a noticeable caste differential in the determining factors of the elderly MPI.

The self-reported human health impacts of disaster on people in India: Insights from the Longitudinal Aging Study India

Miss. Ravina Ranjan

Introduction: The human health impacts of disasters are predicted to increase in frequency and severity due to the effects of climate change, it is imperative to understand disaster-related health impacts in highly populous nations such as India, to inform risk reduction measures. Method and materials: Using the Longitudinal Aging Study India (LASI) (Wave 1; 2017-18), we explored the impact of both natural and man-made disasters on the self-reported health of people 45 years and above, as well as their partners (irrespective of age). Descriptive statistics, chi-square tests of association, and relative risk were used to analyze the data by socio-demographics, geographic location, and health concern type. Results: 2,301 respondents (3.5%) reported health impacts due to natural or man-made disasters, 90.1% of these significant. Rural residents and those with no education were more likely to be affected. Within natural disasters, droughts were most commonly responsible for affecting human health (41.7%), followed by floods (24.0%). Two-thirds of the sample reported psychological trauma and one in five experienced chronic illness. Discussion & Conclusion: LASI presents an important first understanding of the self-reported human health impacts of disasters, both natural and man-made in India. Findings indicate social determinants such as education level and rurality impact the risk of disaster-related health impacts, while mental health concerns represent the biggest disaster-related health concern. Future waves of LASI should be examined to determine if human health impacts are increasing due to climate change and the vulnerability of an aging cohort.

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