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Abstract Book



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Technical Session – 1.2

Health Systems and Policy Responses

10598: Measuring Physician Bias: Institutional Discrimination and Health Inequities in India

Shivani Yadav & Krishna Ram

It's an ethical obligation for healthcare providers to treat all patients equally, akin to providing uniform care to everyone seeking healthcare. However, it is essential to acknowledge that healthcare providers, being human, can be influenced by societal biases. These biases, whether conscious or unconscious, can affect interactions within the healthcare sector, contributing to caste-based health disparities in India. This study examines explicit and implicit biases among healthcare professionals of various caste backgrounds and their impact on healthcare in India. Using survey instruments, the Implicit Association Test (IAT), and semi-structured interviews, we assessed the extent of bias among 106 healthcare providers, doctors, nurses, lab technicians, pharmacists, and ward attendants, across the public healthcare system in Etawah district, Uttar Pradesh. Our analysis reveals significant negative caste biases among upper-caste professionals, affecting their professional conduct. Survey results and interviews highlight consciously adopted biases, evidenced in derogatory comments and casteist slurs used by non-Scheduled Caste (SC) providers. In contrast, SC providers display lower levels of bias and greater awareness of institutional discrimination's role in perpetuating health inequalities. Our study calls for an increasing participation of healthcare professionals from disadvantaged caste backgrounds to help mitigate biases and improve healthcare access and quality.

10655: Scaling mHealth for Maternal and Child Health: Lessons from Kilkari in India

Sonam Priya, Shreya Biswas & Rishi Kumar

Maternal and child health (MCH) remains a key public health priority in India, where persistent socio-economic and geographic inequalities continue to limit access to essential care, despite significant progress in recent decades. Digital health innovations, particularly mobile-based interventions, have emerged as promising tools to bridge these gaps. This study evaluates the impact of Kilkari, one of the world's largest mobile health programs, which delivers weekly voice messages on reproductive, maternal, newborn, and child health to registered women. Using pooled data from two rounds of the National Family Health Survey (NFHS-4, 2015-16, and NFHS-5, 2019-21) and employing a difference-in-differences approach that leverages Kilkari's staggered rollout across states, the study estimates the program's effect on key maternal and child health outcomes. The results show that Kilkari significantly increased the likelihood of four or more antenatal care visits, iron-folic acid consumption, and postnatal check-ups, while reducing the prevalence of childhood anaemia. The impacts were stronger among poorer and rural households, highlighting the program's potential to reach disadvantaged populations. However, no significant effects were observed on institutional deliveries, tetanus vaccination, or immediate breastfeeding, indicating the need for complementary behavioral and systemic interventions. Robustness checks and placebo tests confirm the validity of these findings. The study provides one of the first large-scale empirical evaluations of a national mHealth initiative in India, demonstrating that mobile-based information delivery can improve maternal health behaviors and child outcomes when effectively integrated with existing healthcare systems, contributing to progress toward the Sustainable Development Goals.

10521: Spatial Inequalities in Health Deprivation Across India: A Composite Index Approach

Neha Choudhary & Manoj Kumar

This study examines the multidimensional nature of health deprivation across major Indian states, with a particular focus on five key dimensions: basic amenities, health coverage and access, child health and nutrition, healthcare facilities, and health outcomes. The study aims to measure the extent of health deprivation, identify its key drivers and analyse the patterns of inter-state disparities. - The analysis draws on secondary data from multiple national sources, including the Multiple Indicator Survey - National Sample Survey (MIS-NSS), the National Family Health Survey-5 (2019-21), the Sample Registration System (2020), and the National Health Profile (2018). The study focuses on 21 major Indian states, following the classification adopted by NITI Aayog in its health-related assessments. A composite Health Deprivation Index is developed using Principal Component Analysis (PCA), which enables assessment of multidimensional deprivation and spatial variation across states. - Findings indicate significant interstate differences. States such as Bihar, Jharkhand, and Uttar Pradesh experience severe health deprivation, while Kerala, Tamil Nadu, and Maharashtra perform relatively well. The patterns suggest that high-deprivation states are characterised by systemic deficits across multiple dimensions, low insurance coverage, inadequate maternal and child care, high anaemia and malnutrition, and weak infrastructure. Key factors driving deprivation in lagging states include low insurance penetration, inadequate maternal healthcare, and persistently high levels of child undernutrition. In contrast, better-performing states benefit from stronger health systems, wider service coverage, and improved health outcomes. - The study underscores the need for region-specific interventions to address disparities and strengthen public health security.

10645: Exploring the Impact of Digital Health Innovations on Work Conditions and Well-Being of Frontline Health Workers

Shierie Fatma, Amrin Fatma & Rumaan Alam

Introduction: Frontline Health Workers (FLHWs) such as ASHAs and ANMs have long managed extensive manual tasks, including home visits, maternal and child tracking, and record-keeping. The introduction of digital health platforms like Sahiya App, ANMOL, and e-MCH aims to streamline these processes and improve monitoring. While these tools enhance efficiency, they also introduce challenges that affect workload, stress, and overall well-being. This study explores how digital platforms shape FLHWs' working conditions, mental health, and service delivery, while identifying barriers, facilitators, and policy measures for sustainable digital adoption. **Methodology:** The study was conducted in five villages of Deoghar district, Jharkhand, using a qualitative exploratory design. Twenty-seven participants, including ASHAs, ANMs, beneficiaries, CHOs, MOICs, and NGO representatives, were purposively selected. Data were collected through In-Depth Interviews, Focus Group Discussions, and Key Informant Interviews, transcribed, translated, and analyzed thematically using Excel and ATLAS.ti. Open, axial, and selective coding helped identify key patterns around digital adoption, workflow, and psychosocial effects. Reflexive notes ensured analytical depth and consistency. **Findings:** FLHWs expressed strong professional pride and community trust but faced dual record-keeping, app glitches, and connectivity issues that increased workload and stress. While digital tools improved real-time reporting, lack of training and technical support limited usability. Peer and family support aided learning, yet financial constraints, delayed

payments, and personal data expenses added pressure. Community mistrust over digital data further complicated outreach. Workers recommended unified apps, regular training, and higher honoraria (â,¹10, 000-â,¹15, 000) to reflect their workload. Conclusion: Digital platforms have improved monitoring but also intensified work demands and mental strain.

Technical Session – 1.3

Youth and Employment

10467: Do Migrant Sons Ease the Burden? Labour Supply Response of Left-Behind Older Adults in India

Valatheeswaran

As India undergoes rapid demographic transition and experiences widespread migration, the economic well-being of older adults left behind has emerged as a critical concern. This study examines the association between adult sons' migration and the labour force participation of older adults in India, using nationally representative data from Wave 1 of the Longitudinal Ageing Study in India (2017-18). Employing both bivariate and multivariate logistic regression analyses, the study finds that older adults with migrant sons, particularly those whose sons have migrated internationally are significantly less likely to participate in the labour force compared to their counterparts with non-migrant sons. The results suggest that remittances may reduce the financial necessity to work. However, higher participation is observed among older men, Scheduled Caste/Scheduled Tribe members, those living alone, without pension, in good health, physically active, and residing in rural areas. These findings highlight the importance of socioeconomic status, health, and living arrangements in shaping labour market engagement among older adults. As traditional familial support systems weaken, the study underscores the urgent need for inclusive policy responses, such as expanding social pensions and strengthening care infrastructure, to support the ageing population in an increasingly mobile society.

10567: Understanding the Barriers to Youth Participation in Vocational Skill Training Programs

Arvind Bansode, Sandip Vairi & Uma Sundararaman

This study investigates the obstacles hindering the enrollment of Indian youth ages 16-30 into vocational skill development programs and how these obstacles differ according to gender, educational attainment, and geographic location. Based on Yuva Parivartan's experience over the last 20 years in youth skilling across 18 states, the research aims to understand the low participation rates despite substantial government and NGO initiatives directed at youth skilling. A cross-sectional descriptive research design was employed, where data were collected from 638 respondents in rural and urban areas via standardized questionnaires. For the purpose of establishing predictors of enrollment barriers, descriptive and inferential statistics such as the chi-square test and logistic regression were used. - The data point to two dominant barriers to participation, financial and informational. Nearly 70% of youth cited inability to afford training as the key obstacle, while over half lacked clear information about course options, duration, or suitability. Digital access issues were more common among men, and rural youth faced higher informational gaps. The 16-20 age group emerged as the most vulnerable, struggling both with finances and awareness, underscoring the need for early-stage financial aid and career guidance interventions.

10542: Labour Market Inequalities in the Context of Demographic Transition

Merlin Premala J

Kerala, widely recognized for its progressive social development indicators, presents a paradox in labour economics: persistently low female labour force participation and pronounced gender-based wage disparities, despite high educational attainment among women (Ministry of Statistics and Programme Implementation [MoSPI], 2024). These disparities are not monolithic but vary across age cohorts, reflecting life-cycle dynamics in workforce entry, sectoral segregation, and labour market exclusion. This study examines age-differentiated gender wage gaps in Kerala using unit-level data from the Periodic Labour Force Survey (PLFS) 2023-24. Employing the Oaxaca-Blinder decomposition method, the analysis disaggregates wage differentials into explained and unexplained components. The working-age population is segmented into four cohorts 15-29, 30-44, 45-59, and 60+ to assess how wage gaps are influenced by educational attainment, employment type, sectoral distribution, marital status, and geographic location. Using a threefold decomposition framework, the study distinguishes between endowment effects (differences in human capital and job characteristics), coefficient effects (returns to these endowments), and interaction terms. Findings reveal a widening wage gap with age, driven by occupational stratification, informal labour market dynamics, and systemic undervaluation of women's labour particularly in rural and casual employment segments. - The results highlight the urgency of age-sensitive and gender-responsive labour market policies in Kerala, including targeted skilling initiatives, wage transparency reforms, and incentives for women's retention in formal sectors. This study offers actionable insights for policymakers, gender economists, and labour rights advocates committed to advancing equitable wage structures through evidence-based interventions.

Technical Session – 2.1

Demographic Shifts and Population Structure

10528: Contraceptive Use Before First Birth Among Young Women and the Role of Frontline Health Workers in India

AJ Francis Xavier

Background: In India, evidence shows that many married youths intend to delay their first pregnancy, but few use contraception to do so. Studies examining the factors that facilitate or hinder young people from practising contraception before the first pregnancy are limited, especially the role of frontline health workers (FLWs) in these issues. **Objectives:** This paper aims to understand the extent of young women's contraceptive use before their first pregnancy and the factors associated with it, focusing on the role of FLWs. **Data and Methods:** Data are drawn from the NFHS 2019-21 of married young women aged 15-24 in India. The present analysis is restricted to 59,894 married young women aged 15-24 years who had started cohabiting within the last five years before the interview. Bivariate and multivariate analysis was also conducted to examine the relationship between young women's contraceptive use before the first pregnancy and socio-economic characteristics, and the percentage of FLW interaction with women in the village. This is measured as the percentage of women who have received any advice or services from FLW in the past 5 years. **Findings:** The results show that 9% of young women used contraception before their first birth. Contraceptive Use to delay the first birth increases from 6% to 14% when FLW interaction with women in a village increases from less than 20% to over 80%. Multivariate analysis indicates that higher FLW interaction

increases the likelihood of using contraception, before the first birth. For instance, the odds ratios for young women using contraception are 1.9 and 2.6 in villages with 60-80% and over 80% FLW interaction, respectively, compared to villages with less than 20% FLW interaction. Conclusions: The findings strongly support increasing FLWs' visits, especially to newly married couples, to address the barriers young men and women face when accessing contraceptive supplies.

10502: Short Birth Intervals in Malawi and its associated factors: Evidence from 2015-16 Malawi Demographic and Health Survey

Martin E Palamuleni

Background: Short birth interval among women is a public health challenge. It is associated with both high fertility and negative maternal and child health outcomes. Little is known about the prevalence and determinants of birth intervals in Malawi. As such, the aim of this study was to determine the determinants of the short birth interval among women in Malawi. Methods: The study was based on the secondary analysis of 10205 women aged 15-45 years who gave birth in the past five years that was extracted from the 2015-16 Malawi Demographic and Health Survey. Chi-square test and logistic regression were used to establish the relationship between birth intervals and background characteristics of women. Results: The prevalence of SBI in Malawi was 12.0%. After adjusting for confounding variables, short birth intervals were significantly associated with women aged 25-34 years (AOR=0.26, 95% CI=0.23-0.30, p=0.000), women aged 35-44 years (AOR=0.09, 95% CI=0.07-0.10, p=0.000), women aged 45-49 years (AOR=0.11, 95% CI=0.09-0.14, p=0.000); middle wealth status (AOR=0.72, 95% CI=0.61-0.84, p=0.000), rich women (AOR=0.66, 95% CI=0.59-0.75, p=0.000); women belonging to the Tumbuka (AOR=0.73, 95% CI=0.60-0.89, p=0.002), Tonga (AOR=0.72, 95% CI=0.52-0.99, p=0.048), Sena (AOR=0.69, 95% CI=0.51-0.93, p=0.015), Ngoni (AOR=0.72, 95% CI=0.59-0.87, p=0.001), Mangochi (AOR=0.67, 95% CI=0.45-1.00, p=0.046), Nyanja (AOR=0.48, 95% CI=0.29-0.78, p=0.003), Muslim women (AOR=1.126, 95% CI=1.07-1.49, p=0.011); primary education (AOR=1.34, 95% CI=1.12-1.59, p=0.001), secondary education (AOR=1.57, 95% CI=1.29-1.92, p=0.000, higher education (AOR=2.02, 95% CI=1.38-2.98, p=0.000) and male births (AOR=0.45, 95% CI=0.39-0.52, p=0.000). Conclusion: These significant factors should be considered when designing programmes to promote adequate birth intervals. Therefore, there is need to educate females about the ideal birth interval and how to achieve it.

10581: Multilevel Analysis of Early Marriage and its Determinants Among Young Women in A High Prevalence State of India

Pratima Barman & Harihar Sahoo

Early marriage is still a significant obstacle in achieving India's Sustainable Development Goal (SDG)-5.3. Thus, the study intended to assess early girl marriage and its determinants among young women in a high-prevalence state of India. Data were retrieved from the fifth round of the National Family and Health Survey (NFHS-5). A sample of 5,405 women age group 18-24 years married before the age of 18 years were included in this study. A multilevel mixed effect logistic regression model was fitted to identify the predictors of early marriage among girls in West Bengal; the Akaike Information Criterion (AIC) and the Bayesian Information Criterion (BIC) were used for model fitness. The prevalence of early marriage in West Bengal is 39.5%. Women with 9-10 and 12 or more years of schooling, from richer wealth quintile, Household heads with 35-55 years, and Scheduled Tribe social groups showing lesser odds. Households

with 5 or more members, female-headed households, women from Hindu communities, and rural areas show higher odds than their counterparts. The result indicates the need to improve girls' education in rural areas. Also, it needs culturally inclusive initiatives for female-headed households, with younger household heads, and households with 5 or more household members.

10747: Spatial Analysis of Marriage to First Birth Interval among Women aged 15-49 in India

Shivangi Gupta, Sadanand Karun & Dr Manas Ranjan Pradhan

Background: The length of the 'marriage to first birth interval' affects not only the length of the subsequent birth intervals but also the reproduction behaviour, fertility pattern, birth rate, and size of the population in an area. This study examines the spatial patterns and determinants of marriage to first birth interval' (MFBI) at the district level in India. Methods: We utilized the fifth round of the National Family Health Survey (NFHS-5) data conducted in 2019-21. We assessed the spatial pattern of MFBI through choropleth mapping, Anselin Moran's I, univariate Local Indicators of Spatial Association (LISA), and bivariate LISA techniques. Finally, we employed the ordinary least square, spatial lag, and spatial error model to examine the correlates of MFBI at the district level in India. Results: We found a significantly high spatial autocorrelation for mean MFBI (Moran's I: 0.822; p-value <0.001) at the district level. The spatial distribution reflected a skewed spatial pattern of mean MFBI among women across space. Our study found a hotspot (high-high cluster) of mean MFBI in the northern region, whereas a cold spot (low-low cluster) in the southern and northeastern areas. The spatial regression model further indicates that the proportion of women aged 15-24, married before age 18, unexposed to mass media, Muslim religion, and rural residents were major spatial determinants of MFBI at the district level in India. Conclusion: Our findings indicate a staggering scenario of MFBI in the northern Indian districts because women's low age at marriage led to a higher MFBI. In contrast, in southern Indian districts, a shorter MFBI is because a higher proportion of women get married after age 18. - Keywords: Marriage to first birth interval, Nuptiality, Fertility, Marriage, Spatial autocorrelation, Spatial regression, Spatial error model.

Unmet Need: Whose Need, What is Unmet?

Udaya S Mishra

Unmet need is widely used as a programme indicator for family planning and to gauge the levels of ill-timed/ unwanted fertility among the countries, based on the survey data. However, it overlooks women's individual assessment of fecundity and remains limited in terms of being a statistical construct, based on the current contraceptive use and fertility intention. Therefore, refinement of unmet need in keeping with the actual need of women is of growing concern among the researchers and policy makers. This paper is an attempt to assess the unmet need among Indian women based on the potential fertility and experienced fecundability using latest National Family Health Survey (NFHS-4) data. The study observed a huge gap in reported unmet need and the revision accounting for fertility potential and fecundity status. The pattern remained the same across the place of resident and wealth quintile. Unmet need as a measure has received criticisms and disagreements from many quarters in regards to its calculation methods, inconsistency and predictive ability. This exercise facilitates obtaining a realistic extent of unmet need, which is far lower than the stated levels that exposes the limitation of the conventional notion of unmet need.

Technical Session – 2.2

Menstrual Hygiene Practices

10736: Beyond Hygiene Practices: Assessing Menstrual Health among Girls and Young Women in Metropolitan Slum Settings of Mumbai

Paramita Majumdar, Shireen J Jejeebhoy, Aparajita Chattopadhyay & Gursimran Singh Rana

Menstrual health management remains compromised in resource poor settings. This exploratory study examines menstrual health management (MHM) among poor girls and young women in Mumbai's slums, where patriarchal norms and limited resources prevail. We employ a comprehensive measure of MHM that encompasses not only menstrual product use and access to water, sanitation and hygiene (WASH) but also MHM-related knowledge, attitudes, and practices. Findings reveal that only about 26% of girls and young women experience good MHM in these slums. While exclusive use of hygienic menstrual products is near universal, fewer have access to WASH, girls are inadequately aware of the different aspects of menstruation, adhere to traditional norms and are unable to experience menstruation with dignity. Multivariable findings highlight a strong association between girls' agency and social networks and their menstrual health management experiences, underscoring the need for comprehensive adolescent education activities that build girls' ability to exercise informed choice.

10653: Menstrual Hygiene Management and Women's Health in India: A Study Using NFHS-5

Rakhi Bharati

Menstrual hygiene management (MHM) is a vital component of women's health and empowerment, yet it remains a neglected public health issue in India, particularly among rural and socio-economically disadvantaged populations. This study investigates the socio-demographic and economic determinants of hygienic menstrual practices among women aged 15-24, using data from the National Family Health Survey (NFHS-5, 2019-21). The analysis employs ordinary least squares (OLS) regression to examine factors including age, education, wealth, place of residence, religion, caste, employment status, mass media exposure, contraceptive knowledge, and regional differences. Findings reveal that rural residence, low educational attainment, and poverty are strongly associated with lower odds of exclusive use of hygienic menstrual methods. Exposure to mass media and knowledge of modern contraceptive methods are positively associated with better menstrual hygiene practices. Regional disparities are evident, with southern states reporting higher adoption of hygienic practices, whereas several districts in central, northern, and northeastern India lag behind. These results highlight the intersection of socio-economic, cultural, and structural barriers that hinder equitable access to menstrual hygiene products and practices. The study underscores the need for targeted interventions, including improved access to affordable menstrual products, education, and awareness campaigns, particularly in underserved communities. By providing nationally representative evidence, this research contributes to policy formulation aimed at reducing disparities in menstrual health and promoting the dignity, well-being, and empowerment of women across India.

Keywords: Menstrual hygiene management, NFHS-5, India, rural health, women's empowerment, hygienic practices

10632: Knot Too Early: The Causal Impact of Women's Age at Marriage on Hygienic Period Products Use

Sagnik Kumar Gupta

This paper evaluates the causal impact of women's age at marriage on their likelihood of using hygienic period products, using the most recent round of the National Family Health Survey (NFHS-5) in India. To address potential endogeneity, we exploit exogenous variation in a woman's age at menarche as an instrument for her age at marriage. The instrumental variable (IV) estimation provides robust evidence that a one-year increase in a woman's age at marriage increases, on an average, the likelihood of hygienic product use by 7 percentage points. We also provide suggestive evidence that higher education and increased household decision-making power are potential mechanisms driving this effect. These findings signify the importance of enforcing laws regulating the legal age of marriage and highlight the broader need for societal shifts that promote later marriage, better menstrual hygiene, and the empowerment of young women.

10477: Beyond Public Health: Sanitary Napkin Disposal Practices among Adolescent Girls of India

Praveen Chokhandre, Basavaraj I. Pundappanavar, Jyoti S. Hallad & Shrikanta R. Vatavani

Objective: To understand the pre-disposal practices, followed by the final disposal of used sanitary napkins. Additionally, an attempt has been made to identify the factors associated with menstrual waste disposal. **Methods:** With a cross-sectional survey design, data collected from 16 major States of India. In total, 7680 adolescent girls were selected, of which 6, 715 were successfully interviewed, yielding a response rate of 87%. The survey took place from January to March 2023. **Results:** Urban-rural segregation suggests, in overall, a higher proportion of rural girls burn the sanitary napkins (31%), followed by giving it to garbage collection vehicle (26%) and throwing it in open area (20%). Similarly, in urban areas, a higher proportion of girls giving it to garbage collection vehicle (56%), followed by burning (16%) and throwing it in open area (12%). Noticeably, for rural areas, the burning of sanitary napkins found higher particular in the states of Maharashtra (81%), Kerala (77%), Tamil Nadu (66%), Karnataka (61%) and Andhra Pradesh (50%). Whereas, throwing of used sanitary napkins in open areas found higher for the states of Bihar (75%), Uttar Pradesh (58%) and Gujarat (51%). While identifying predictors of safe disposal, safe disposal found significantly associated with household wealth quintile, girls received knowledge on menstrual waste disposal, level of restrictions during menstruation and by religious affiliation. State wise, safe disposal found higher in urban girls across the states, except Punjab and Kerala. The urban rural difference found exceptionally higher for the states of Maharashtra, Himachal Pradesh, Gujarat, Karnataka, Tamil Nadu and Jammu, Kashmir. **Conclusions:** The study's findings will be helpful to policy makers to develop evidence based, context-sensitive interventions that can strengthen menstrual waste governance and promote sustainable practices, and enhance the health and dignity of menstruators.

Technical Session – 2.3

Migration, Urbanization and Regional Inequalities

10603: Migration, Urbanization, and Social Transformation in India: Interlinkages between Economic Growth, Family Dynamics, and Urban Development

Sanjay Salunke & Rahul Mahamuni

Migration and urbanization have become defining features of twenty-first-century development. India, in particular, is experiencing a major demographic shift as millions migrate from rural to urban areas in search of better opportunities. This paper examines the multifaceted relationship between migration, urbanization, and social change, with a specific focus on India. Drawing on data from the World Economic Forum (2017), Tripathi and Kaur (2017), and Trask (2022), the study explores the economic, social, and familial dimensions of migration. The findings suggest that rural-to-urban migration in India is driven largely by employment opportunities, infrastructural development, and changing aspirations. However, migration also introduces challenges such as urban poverty, housing shortages, family fragmentation, and social inequality. The paper concludes with recommendations for inclusive urban policies, family-centered migration frameworks, and sustainable urban development strategies.

Keywords: Migration, Urbanization, Rural-Urban Mobility, Family Change, Sustainable Development, India.

10595: Staying in Place: Immobility, Climate Change and Adivasis in the Coal Mining Regions of Jharkhand, India

Archana Kujur & Nikas Kindo

In coal mining regions of India, decisions to stay in place amid environmental and socio-economic transformations are deeply intertwined with questions of immobility, climate change, and social inequalities. This paper examines how voluntary and involuntary immobility shape livelihood and intersect with everyday survival in the coal economy. Drawing on ethnographic fieldwork conducted between 2019 and 2022 among coal-dependent Adivasi communities in Jharkhand, India, we explore how immobility emerges as a coping strategy in the face of displacement threats, environmental degradation due to coal mines, and India's climate action, particularly transitioning away from coal. While the dominant narrative often argues migration as an adaptive response to climate change, this study highlights the agency of those who choose or are compelled to remain. The findings reveal that immobility is both a product of structural constraints, such as inadequate compensation schemes and restricted access to resources and opportunities, and a conscious decision to preserve cultural identity among coal-dependent Adivasi communities, inter-community ties and land-based livelihoods. This paper calls for a more critical understanding of resilience and vulnerability in coal mining regions by situating immobility within the broader context of climate adaptation, social and climate justice in India. Our analysis contributes to debates on equitable climate policies and development practices by emphasizing the need to address the underlying inequalities of immobility in the most vulnerable communities.

Dreams Beyond Borders: A Field Study of International Migration from Punjab

Rashmi

International migration has evolved into a defining socio-economic phenomenon reshaping the rural landscape of Punjab. Once confined to a few households, it has now become a pervasive aspiration, with many families having already sent or intending to send their children abroad. This study is grounded in a field survey of five villages in Patiala district, utilizing random sampling and simple statistical tools to analyze the patterns, drivers, and implications of international migration from rural Punjab. The analysis reveals a distinct demographic profile: migration is predominantly youth-driven, male-oriented, and concentrated among general caste households. A majority of migrants hold senior secondary or higher educational qualifications and belong to nuclear families. Spatio-temporal examination shows that international migration has accelerated its pace sharply in the study area since 2015. North America emerges as the most preferred destination, followed by Oceania, reflecting evolving global migration corridors. Heightened immigration regulations have rendered legal pathways especially student visas as the primary mode of migration. The economic dynamics of migration in the study area involve significant household investments, often financed through savings depletion, asset liquidation, or high-interest borrowing, resulting in widespread indebtedness. While remittance inflows remain limited due to recent migration trends, they significantly enhance household living standards. Migration occurs across both landless and landowning households, with farm size positively influencing migration propensity. The findings underscore the importance of strengthening skill-based education, expanding local employment opportunities, and regulating unlicensed migration consultancies to protect vulnerable families.

10740: Assessing the access to health care among female migrants: A qualitative study among migrant women in Mumbai

Sandhya Kumar & Reshmi RS

Background: India has millions of internal migrants; the 2011 Census counted over 450 million (37% of the population), with Maharashtra a top destination and women comprising roughly twice the number of male migrants. Prior work notes economic and social challenges, low access to social/financial entitlements, limited knowledge of health facilities, and literacy-linked gaps in health care utilization. This study aims to contribute qualitative findings on migrant women's access to maternal and child health (MCH) services and their attitudes toward healthcare access and use. **Methods:** Qualitative study in Mumbai using in-depth interviews with migrant women (n=22) and key-informant interviews with healthcare workers (n=10) conducted in March 2025 in Hindi/Marathi. Inclusion targeted women aged 15-49 who migrated within five years and delivered within the past five years. Open coding and thematic analysis (NVivo) were used to examine attitudes, utilization, barriers, and provider perspectives. **Results:** Two themes emerged. **MCH Care Utilization, Perceptions:** noted a general preference for hospital delivery for safety and documentation, fear of operations particularly among Muslim populations, perceived equality, reports of scolding; steep out-of-pocket costs; long queues; and government schemes not availed or received. **Health Care Access Barriers** noted included distance and transport constraints; financial constraints; documentation barriers after home births; family responsibilities; knowledge/information gaps; stigma in communicating SRH; mobility limited by husbands. Providers suggested nearer maternity sites, bus routes, mobile clinics, pregnancy camps, and on-call ambulances. **Conclusion:** These findings highlight how time, cost, documentation, information, and dignity shape migrant women's navigation of MCH care in urban slums. Interventions geared towards removing these barriers could protect women's health in contexts of migration.

Technical Session – 3.1

Social Protection and Elderly Care

Indian Paradox: Why is the Relationship Between Women's Education & Labor Force Participation U-/J- Shaped?

Esha Chatterjee

It has long been known that Indian women's labor force participation rates have a U-shape relationship with their education, rather than a more conventional positive linear relationship. The low rates of employment for moderately educated women are usually explained either as a result of the cultural stigma relating to women's employment in a patriarchal society, or because of the lack of demand from white-collar and light manufacturing jobs for women with middle levels of education. Using especially well suited data from two waves of the India Human Development Survey, we test these explanations by examining the education – employment relationship in districts with low cultural stigma and in districts with high proportions of salaried employment considered “suitable” for women. We find little support for either the cultural or structural explanations: the education-employment relationship remains U-shaped in districts with low stigma or with more “suitable” salaried employment. Instead, we suggest a better explanation lies in the high levels of gender segregation where most white-collar jobs are reserved for men. We simulate what the education – employment relationship would look like if these white-collar occupations were female dominated as they are in most places in the world and find a more conventional linear relationship.

10636: Role of Social Infrastructure and Social Welfare Programs on Social Activities of Those Aged 45 and Above

Mala Ramanathan, Rashmi Rashmi, TV Sekher, TR Dilip, Jissa VT & Tijo George, Aparna Sasi, Shalini Stenson & Rakhal Gaitonde

Introduction: Ageing in a healthy manner calls for elderly to engage in social activities. Government programs facilitate provisioning of pensions and financial assistance. Some states provide infrastructure such as the Senior Citizens' Centres in Uttar Pradesh or the Vayomithram in Kerala. These programs and infrastructural facilities can affect social activities among elderly. - **Objectives:** This study aims to explore the connections between the social activities that a community engages in and the available social infrastructure and programs. **Methodology:** The study utilises a community-level dataset created by aggregating information from LASI's individual and community-level data. It included 2, 440 communities across rural and urban India. Three broad constructs were considered in the analysis: social activity, social infrastructure, and social welfare programs. A community-level analytical framework was applied, using the average level of social activity in each community as the outcome variable. The main explanatory variables were the indices of social infrastructure and social welfare programs. **Critical Findings:** Path analysis clarified these relationships. For the total sample, welfare programs had a negative direct effect on social activity ($\hat{\beta} = -0.13154$), but a small positive indirect effect through infrastructure ($\hat{\beta} = 0.0167$), resulting in a net negative total effect. In contrast, social infrastructure had a positive direct effect on social activity ($\hat{\beta} = 0.048$), indicating its consistent enabling influence. Association between welfare programs and infrastructure was strongly positive ($\hat{\beta} = 0.348$), indicating that communities with greater program coverage also have better physical and institutional infrastructure. - **Conclusions:**

Provisioning of social and economic resources does not directly enhance social activities among those aged 45 and above in a community unless it comes with the provisioning of appropriate infrastructure.

10596: Spousal Well-Being Among Older Adults in India: A Dyadic Perspective

Dipti Govil & Manish Lekhwani

Individuals in close relationships, such as marriage, start sharing similar levels of overall well-being over time. Similarity in the wellbeing status between partners can be assessed through either the extent of concordance between spouses or effect of each other's characteristics. Research on spousal concordance is widely studied in the western countries, whereas in India, the domain is unexplored especially for life satisfaction and health. Therefore, this paper examines the extent of life satisfaction concordance between spouses using data from the Longitudinal Ageing Study in India (LASI), Wave-1 (2017-2018). The study generates a dataset of 22, 451 couples and tries to find the factors that affect the life satisfaction in couples. Descriptive statistics and regression were performed to assess the association. The results show a significant positive correlation between the life satisfaction of spouses. Couples with higher spirituality exhibited higher life satisfaction, while depression and low self-reported health were associated with lower life satisfaction. Other factors like satisfaction with living arrangement, better education, no morbidity showed a positive association with high life satisfaction. The study underscores how spousal concordance is essential for having better well-being in Indian couples and highlights the relevance of considering shared health and emotional experiences in understanding successful ageing.

10664: Loneliness and Quality of Life among Older Adults aged 60 years and above in India: An Evidence-Based Study

Dhananjay W Bansod & Raghunath Mandi

Introduction: Loneliness is a significant public health concern among older adults, often associated with adverse health outcomes and reduced quality of life. In India, where rapid demographic transitions are reshaping traditional family structures, understanding the relationship between loneliness and quality of life in old age is critical. This study examines the prevalence of loneliness and its association with quality of life among older adults. **Methods:** This study focuses on 31, 902 elderly respondents aged 60 years and above from the LASI data. Loneliness was assessed using self-reported responses to questions about feelings of loneliness. Quality of life was measured using a composite index derived from indicators related to physical health, psychological well-being, social relationships, and economic security. Descriptive statistics, bivariate analysis, and multivariable logistic regression models were employed to explore the relationship between loneliness and quality of life, adjusting for demographic, socioeconomic, and health-related covariates. **Results:** Approximately 36% of older adults reported feeling lonely, and it increases significantly with age. Loneliness was most frequent among women, those living alone, widows, and those with poor health. Multivariate analysis revealed that loneliness was a strong predictor of lower quality of life (OR: 2.15; 95% CI: 1.89-2.45), even after controlling for sociodemographic covariates. Social participation and frequent interaction with friends or family appeared to buffer the negative effects of loneliness on quality of life. **Conclusion:** Loneliness is a prevalent and critical determinant of reduced quality of life among older adults in India. As traditional support systems weaken due to urbanization and migration, there is a growing need for community-based interventions and mental health support to address loneliness in ageing population to improve the overall quality of life in later years.

Life After Loss: Aging, Widowhood and Time Allocation in India

Sila Mishra

Living with a spouse creates economies of scale by allowing couples to pool resources and divide tasks efficiently and economies of scope by benefiting from task interrelatedness, saving time and effort. Without these advantages, widows lose shared resources and responsibilities but may also gain control over their time. Navigating between these losses and newfound autonomy is complex, particularly for elderly women in India, where the aging population is growing rapidly, and social security systems remain limited. While research from developed countries explores time-use adjustments after widowhood, there is little evidence from developing contexts, where social norms and economic constraints shape widows' experiences differently. In this backdrop, this study investigates the time-use patterns of older widows in India, analyzing the path of adjustment following the demise of the spouse. It examines these shifts by considering their time allocation in working for the household and its members, employment, unpaid trainee work, leisure activities, and activities for self, using eight waves of the CMIE Consumer Pyramids Household Survey. We find a significant decline in time spent on household work, likely due to shifting responsibilities and reduced expectations for shared domestic labor. In the short run, widows increase time spent on leisure and personal pursuits, reflecting greater autonomy and emotional coping. However, heterogeneity analysis indicates this increase in leisure persists primarily for widows with pensions and for those in larger or female majority households, highlighting the role of financial security and household composition. Hindu widows, in particular, show increased household work and reduced self-time, pointing to religious and cultural influences. There is no evidence of reallocation of household responsibilities to daughters or daughters-in-law. We also find a decline in household income and self-production activities post-shock, indicating economic strain. A comparison with widowers reveals a different trajectory: widowers reduce time allocated to employment and increase time spent on activities for self and leisure after the spouse's death.

10743: Assessing Age-Friendliness across India and its association with Older Adults Well-being

Tessy Rose Samson & Zareena Begum Irfan

Age-friendly environments have become a cornerstone of global efforts to enable active and healthy ageing but India lacks a quantitative index to capture these domains comprehensively. This study constructs and validates an Age-Friendly Environment (AFE) index for India using the WHO's AFE checklist and assess its association with life satisfaction among older adults, with attention to rural-urban and gendered disparities. A total of 62,800 older adults' responses across individual, household and community level of the Longitudinal Ageing Study in India (LASI, Wave-1, 2017-18) were used to construct a composite AFE index. To identify the most influential factors with life satisfaction in each domain, we used least absolute shrinkage and -selection operator (LASSO) across subgroups. Furthermore, the cumulative AFE index was categorised into quintiles to see whether higher AFE quintiles had higher odds of having better wellbeing measured using subjective well-being life satisfaction scale. The results show that older adults in India live in environments that are only half way to being fully age-friendly. Moreover, there is stark difference between those residing in rural and urban areas with a clear urban advantage. This study also highlights that belonging to higher AFE quintiles were significantly associated with greater odds of reporting high life satisfaction offering insights for creating supporting environment for ageing adults.

Technical Session – 3.2

Child Nutrition

10483: Understanding Child Anemia of India: Evidences from National Family Health Surveys

Manoranjan Mohapatra

Introduction: Child anemia, one of the non-communicable and multi-factorial diseases in India with public health importance, occurs due to low level of hemoglobin in the blood. A substantial amount of child anemia exists among India. Objective: In this context, it is necessary to understand child anemia and its elimination strategies. Methodology: A cross-sectional study design using different quantitative techniques like trend analysis, spatial distribution analysis, average analysis and finally bi-variate analysis are carried out among children across NFHS datasets. Critical Findings: Child anemia was increasing and most importantly mild anemia was increasing across NFHSs in India. Eastern India had more mild anemia whereas western and northern India had more moderate and severe anemia respectively. Northern India had a long period of child anemia say, culture of child anemia whereas a cultural shift of child anemia in eastern and western India. Besides, Assam, Gujarat and Ladakh were the high prevalent states of mild, moderate and severe anemia respectively in the last round of NFHS. As the results show existence of regional and state level variations in child anemia among India, it is advised to address child anemia through state wise due to average regional prevalence is a crude measure and every state has their own health system. Lastly, though every group had relationship with child anemia, however, mothers not expose to mass media, poorest mothers and lastly rural children had more anemia due to its commonality and continuity across different levels of anemia and also across NFHSs. Conclusion : To conclude, the strategic solution for elimination of anemia is to create proper awareness on prevention and treatment of anemia through scientific messages using mass media by the health system and also focus on early screening and treatments of rural children and lastly economic empowerment of mothers.

10555: Caste-wise Differentials in Child Malnutrition in India: Evidence from NFHS-3 and NFHS-4

D. P. Singh, Laxmi Kant Dwivedi & Somnath Jena

India is a multiethnic nation characterized by a complex social structure comprising numerous religious and caste groups. Since the 1931 Census, detailed caste data have not been collected in the national census. Although the Ministry of Rural Development conducted the Socio-Economic and Caste Census (SECC) in 2011, the data released were aggregated only by broad social categories, Scheduled Castes (SC), Scheduled Tribes (ST), Other Backward Classes (OBC), and others, rather than by individual caste names. Consequently, the SECC failed to meet its intended objective of providing comprehensive caste-wise data for policy and research. - The importance of caste enumeration has long been debated in India. As early as the 1931 Census, Hutton (1931), the then Census Commissioner, emphasized that caste classification is vital for understanding disparities in education, occupation, fertility, and other demographic outcomes. However, the enumeration of caste poses methodological challenges, including variations in self-reporting, spelling inconsistencies, and nonresponse. The NFHS experience reveals that about 5-10% of households report caste names, often with regional or linguistic variations. For instance, the term Brahmin appears in multiple spellings (e.g., Brahman, Brahmana), and sub-castes such as Bhardwaj, Chaturvedi, Dubey, Mishra, Tripathi, and Tiwari

are often grouped under the Brahmin category. Similarly, Yadav includes variants like Ahir, Gwala, Golla, Yaduvanshi, and Konar. Trader communities are reported under names such as Gupta, Agarwal, Sahu, and Bania. The demand for a caste census has recently regained momentum, with several state governments, including Bihar, Maharashtra, Uttar Pradesh, Rajasthan, Telangana, and Karnataka, announcing plans to conduct caste-based surveys to improve the targeting of welfare programs and to ensure equitable representation. Even at the national level, political discussions have increasingly been recognised.

10654: Status of Child Undernutrition in Koraput Region of Odisha

Binod Bihari Jena & Niranjana Rout

Introduction: Undernutrition among children under five years of age has still remained a major public health issue in India. According to WHO, undernutrition is the single most factor contributing to child mortality. In this backdrop, this paper tries to study the latest prevalence of child undernutrition in a tribal dominated backward region of Odisha. **Objectives:** To study the prevalence of child undernutrition across districts of Odisha; to study the variations in child undernutrition across socio-economic groups and covariates of child undernutrition in Koraput region. **Data and Methods:** In this study two rounds of NFHS data set (NFHS-4,5) have been used. Koraput Region consists of four tribal dominated districts of Koraput, Malkangiri, Raygada and Nabarangapur where the share of tribal population is more than 50 percent. The standard anthropometric measures are used to study child under-nutrition are: Stunting (low height for age) (Z score < -2SD below the WHO international reference population), Wasting (low weight for height) (Z score < -2SD), Underweight (low weight for age) (Z score < -2SD). **Results and Discussion:** In Koraput Region stunting (44.1%) and underweight (41.2%) was much higher than the state average (stunting: 31.2%; underweight: 30.0%). From NFHS-4 to NFHS-5, the maximum reduction was observed in wasting (11.1 percentage points) compared to underweight (6.3 percentage points) and near stagnant in stunting. In Koraput region the prevalence of child under-nutrition was comparatively higher among ST children, children born to mothers with poor nutritional status, low level of education, low economic status, poor sanitation facilities and low birth weight babies. From regression analysis factors like nutritional status of mother, birth weight of newborn babies and education are the important determinants of under-nutrition among children under five years of age in Koraput region.

10495: Understanding Household Structure and Child Nutritional Status in India: Evidences from National Family Health Survey-5

Nutan Kumari

Childhood malnutrition is still a major public health concern that affects millions of children's health and wellbeing. The study aims to examine how household structure particularly the number of household members and siblings relates to child health, and to analyze the association between the presence of grandparents and child nutritional status, while controlling for key socioeconomic and child/maternal characteristics. The study used the fifth and most recent round of NFHS (2019-21). To align with the study objectives, a 15% sub-sample of households (n=72, 320) was selected to retain mother's educational and occupational information. From these, households with at least one child aged 0-5 years were included (n=26, 717). Children with missing or implausible height, weight, or age data were excluded, as z-scores are sensitive to age-related variations. The results indicate that a higher prevalence of stunting (46%), wasting (24%) and underweight (40%) found among households having more than 7 members compared to household having less than 5 members (33%, 19%, 32%)

respectively. Stunting and wasting and underweight was higher among household having 3 or more siblings and households without grandparents. Apart from family structure, socio-economic factors play a crucial role in determining child nutrient outcomes in India. Household wealth quintile, mother's educational level found significantly associated with child nutritional outcome. In Conclusion, family structure significantly influences child nutrition outcomes in India, with type of family structures, socio economic factors and cultural influences the malnutrition among children.

Technical Session – 3.3

Gender Issues

10577: Unlocking India's Gender Dividend: The Economic Gains of Gender Equity in India

Neha Jain & Srinivas Goli

Based on a panel of 25 major states from 1981 to 2021, this study quantifies India's potential gender dividend. We estimate the economic returns to gender-specific working-age ratios and human capital and run a counterfactual simulation to examine the gains associated with gender parity. In our fixed-effects models, we find that the marginal economic return on female labour-force participation is larger than the marginal economic return of male labour-force participation, raising per capita income by 0.65% for females versus 0.45% for males. Although female attainment of education is statistically significant, the marginal return from education is slightly lower than that from male attainment (3.9% vs. 4.2%). The potential endogeneity issue in the direction of association between 'working-age population' and 'Net State Domestic Product (NSDP)' per capita is treated via an Instrumental Variable (IV) regression approach. Simulated counterfactual models suggest that India's greatest yet unrealized growth stems from employment: equalizing labour-force participation rates would raise per capita income by 150.5%, substantially outweighing the 35.4% increase from closing the educational gap. In addition, the significant state-level heterogeneity in the estimated gender dividend is driven by employment barriers, which are the main binding constraints to growth, illustrating the ineffectiveness of one-size-fits-all policies and highlighting the need for targeted, state-specific interventions.

Keywords: Gender Dividend; Female Labour Force Participation; Demographic Dividend; Human Capital; Education; Employment; Panel Data Regression; Simulation; India

JEL Classification: J16, J21, J22, O15, O40, C23

Association between School and Classroom Climate and Learning outcomes and Agency among Adolescent Girls: Findings from a Longitudinal Study in India

KG Santhya

Introduction: A vast body of research has demonstrated that positive school climate is associated with cognitive, behavioural and psychological development of students. However, most studies on school climate have focused on students in high-income countries, using cross-sectional designs and treated school climate as a static construct. We examined how changes in girls' personal and collective experience of school climate influenced their learning levels and

agency. Methods: We used data from a cluster randomized trial to promote girls' secondary school completion in Gujarat, India (N=1,107 girls enrolled in grades 8-9, first interviewed in 2013 and re-interviewed in 2015). We used random effects regression models to examine the relationship between school climate and girls' learning outcomes and agency. Results: School climate was far from positive, supportive and safe for girls. School climate was strongly associated with girls' learning outcomes and agency. Girls' engagement in non-academic chores in school was negatively associated with learning outcomes. Girls' positive interactions with teachers/staff, social support for students in general, quality of physical learning environment and enrolment in girls-only school were positively associated with learning outcomes. Girls' positive interactions with their teachers/staff in school and safety in classroom/school, in general, were positively associated with girls' education-related self-efficacy, gender egalitarian attitudes, decision-making say, career aspirations, negotiation skills and voice. Conclusions: Findings call for increased investments in interventions that foster positive, supportive and safe climate in school and classrooms. Incorporating valid measures of school climate in education system data to guide continuous improvement of school climate is crucial.

Exploring Mediating and Moderating Gender Pathways Between Chronic Lung and Heart Disease in India

Anjana Kumari

Background: Chronic heart disease (CHD) and chronic lung disease (CLD) are major contributors to morbidity and mortality among ageing populations, often sharing common risk factors and biological pathways. Despite evidence of cardiopulmonary interactions, limited studies in India have examined gender-specific mediating and moderating effects of health risk factors in the CLD–CHD relationship using nationally representative data. This study estimates the prevalence of CHD and CLD among Indian adults aged ≥ 45 years, assesses their association, and explores the gender-specific roles of BMI, self-rated health, hypertension, diabetes, cancer, stroke, and high cholesterol. Data and Methods: We analysed cross-sectional data from 60,632 respondents in Wave 1 of the LASI (2017–2018). Weighted descriptive statistics and gender-stratified multivariable logistic regression models assessed associations between CLD and CHD, incorporating interaction terms for key health risk factors. Mediation analysis used the Karlson–Holm–Breen method to decompose total effects into direct and indirect pathways. Results: The prevalence of CHD and CLD was 3.86% and 7.29%, respectively. Females with CLD had higher odds of CHD (AOR=2.89) than males. Significant moderating effects were observed for SRH, hypertension, high BMI, diabetes, cancer, stroke, and high cholesterol, predominantly among females. Mediation analysis identified SRH as the strongest mediator, explaining 34% of the CLD–CHD association overall (52% in males, 24% in females), followed by hypertension (10%) and high cholesterol (5%). Conclusion: CHD and CLD are moderately associated with shared risk profiles, exhibiting distinct gender patterns. Integrated, gender-sensitive interventions focusing on perceived health and cardiometabolic risk management are essential.

10725: Understanding Intimate Partner Violence as a Determinant of Childhood Immunization Gaps in India: Maternal and Child Perspectives

Priyanka Kumari

Intimate Partner Violence (IPV) not only causes direct physical and psychological harm to women but also indirectly affects child health outcomes, including immunization coverage. IPV

encompasses physical, sexual, and emotional abuse, as well as controlling behaviors by a current or former partner. Evidence suggests that children of women who experience IPV are less likely to receive full immunization, reflecting barriers in accessing essential healthcare services. This study examines the association between women's exposure to IPV and childhood immunization in India using data from the National Family Health Survey (NFHS-5, 2019-21). The analysis is based on information from 5,106 mothers of children included in the violence module. Bivariate and multilevel logistic regression models were employed to explore the relationship between IPV exposure and full immunization. The study also assessed whether maternal education, child's sex, and birth order moderate this association through interaction analyses. Results show that children of mothers who experienced sexual violence (COR = 0.75; 95% CI: 0.61-0.83), emotional violence (COR = 0.91; 95% CI: 0.81-0.99), and any form of violence (COR = 0.83; 95% CI: 0.70-0.95) were less likely to be fully immunized than those whose mothers were not abused. The moderating effect of maternal education revealed that secondary-level education reduces the negative influence of IPV on child immunization. A significant association between any form of IPV and incomplete immunization was observed among children of second or third birth order (AOR = 0.66; 95% CI: 0.52-0.84; $p = 0.001$). The findings highlight the multifaceted impact of IPV on maternal and child health. IPV limits women's autonomy, restricts healthcare utilization, and lowers immunization coverage. Addressing IPV through gender-sensitive policies, community awareness, and integrated interventions is vital to improve maternal well-being and child health outcomes.

Technical Session – 4.1

Health Systems

10771: Determinants of Minimum Dietary Diversity among EAG and Non-EAG States

Gajendra Gupta

Introduction: Consumptions of diversified food during early growth of child could be very crucial for the healthy growth and development of the child as it might be helpful in providing essential nutrients to the children. States such as Uttar Pradesh (13.5%), Rajasthan (14.6%) have lowest prevalence of Minimum diet diversity (MDD) whereas Sikkim (54.7%) has highest prevalence in the country showing the stark regional differences. **Objectives:** - The main objective of this study is to conduct a comparative analysis of dietary diversity between EAG (Empowered Action Group) and non-EAG states of India. It also aims to identify various demographic and socio-economic factors influencing MDD in these regions. **Methods:** - This study utilizes the latest available dataset from the National Family Health Survey (2019-21). It is a nationally representative and cross-sectional dataset that provides dietary information on children aged 6-23 months. Bivariate analysis and binary logistic regression are used for data tabulation and to examine the association between MDD and various demographic and socio-economic indicators. **Results and findings:** - The results of the analysis show that the prevalence of MDD is significantly lower in EAG states (18.26%) compared to their non-EAG counterparts (28.62%). In EAG states, all states except Odisha (39.3%) have a lower prevalence of MDD than the national average (23.4%). Older children (18-23 months) and mothers aged 35-39 years had higher adjusted odds ratios (AORs) of 2.85 and 1.22, respectively. Mother's education, religion, household size, and exposure to mass media were also found to be significantly associated with MDD. **Conclusion:** - The prevalence of MDD is significantly lower in the EAG states of India. Targeted programmes and increased awareness on child nutrition, along with educating mothers and promoting smaller household sizes through family planning, can help improve MDD status in these regions.

10499: Tamil Nadu's Makkalai Thedi Maruthuvam Scheme for NCD Care in Eriyur Block of Dharmapuri District.

Sriram Gopal & P. Sakthivel

Introduction: Non-communicable diseases (NCDs) pose a significant public health challenge in India. In response, the Government of Tamil Nadu launched the Makkalai Thedi Maruthuvam (MTM) scheme in 2021, a doorstep initiative aimed at improving the prevention and management of NCDs in rural areas. **Objective:** This study evaluates the implementation of the MTM scheme in the Eriyur Block of Dharmapuri District, focusing on its impact on healthcare accessibility, the roles and challenges of healthcare workers, and the overall effectiveness of NCD care delivery. **Methodology:** A qualitative case study approach was employed, utilizing semi-structured interviews with a purposively selected pilot sample of Mid-Level Health Providers (MLHPs), Women Health Volunteers (WHVs), and staff nurses from three Primary Health Centres (PHCs). Data were analysed using thematic analysis. **Critical Findings:** The study identifies several operational challenges, including staffing shortages that increase workloads and reduce service quality, inconsistent distribution of performance-based incentives, and a lack of systematic follow-up for patients after initial doorstep medication delivery. While community trust is higher for local WHVs, their effectiveness is hampered by unrealistic visit targets and a lack of transport. Gaps in comprehensive care, such as limited palliative services and unavailability of essential diagnostics like HbA1c testing at PHCs, were also noted. **Conclusion:** While the MTM scheme represents a significant step towards accessible rural NCD care, its effectiveness is constrained by systemic issues. To achieve its potential, the program requires urgent addressal of staff vacancies, standardized training, reliable incentive structures, and robust patient follow-up mechanisms to ensure continuity and quality of care.

Cultivating Civic Sense and Empathy through Literature: A Pathway to Public Health and Sanitation in India

Saheena M

This paper analyses the ongoing epidemiological transition in India, focusing on the rising burden of Non-Communicable Diseases (NCDs) and changing morbidity and mortality patterns across regions. India confronts formidable health disparities amidst its epidemiological transition, with sanitation emerging as a persistent challenge deeply intertwined with caste, culture, and societal attitudes. India faces a sanitation crisis rooted not only in infrastructure deficits but also deeply connected with cultural, social, and caste-based attitudes. This paper examines how literature—specifically Ankur Bisen’s *Wasted: The Messy Story of Sanitation in India*, Mulk Raj Anand’s *Untouchable*, and Arivazhagan’s *Kalisadai*—fosters civic sense and empathy, driving behavioural change critical for public health. Supported by data from the India Today Gross Domestic Behaviour (GDB) survey, the analysis argues for integrating narrative-based civic education into health policy as a foundation for sustainable sanitation and social equity. Employing a mixed-methods approach, it synthesizes quantitative data from national health surveys and vital registration systems with qualitative narrative analysis of Indian literature emphasizing social determinants of health and civic responsibility. Findings reveal that addressing NCDs requires a paradigm shift in public health policy—from medical intervention alone to fostering civic responsibility through community engagement, environmental stewardship, and narrative-based civic education. Integrating health humanities shows how cultural narratives cultivate empathy and collective responsibility, crucial for sustainable health improvement and for harnessing India’s demographic dividend. This study argues that embedding narrative-driven civic education within health policies fosters empathy,

social inclusion, and behavioural change necessary for sustainable health equity and development in India.

10734: Perceived Infertility Stigma Among Women Undergoing Medically Assisted Reproduction in Northeast India

Pratyashee Ojah & Manas Ranjan Pradhan

Infertility treatment seeking, often shaped by the sociocultural context can lead to perceived stigma, in case any alteration from the cultural consonance arises. With surging demand for infertility treatments in Northeast India, especially advanced treatments like Medically Assisted Reproduction (MAR), it is crucial to explore the stigma associated with treatment seeking to mitigate the adverse effects of stigma. Therefore, this study aims to measure the perceived infertility stigma among the treatment seekers undergoing medically assisted reproduction and further explore the key determinants influencing it. Primary data of 188 women with primary infertility have been collected from healthcare facilities with MAR. The psychometric analysis of Female Infertility Stigma Instrument has been carried out to develop a contextual scale and measure the stigma. Bivariate analysis, t-tests and ANOVA have been performed to examine the association of scores with the treatment seekers' profile. Further multinomial logistic regression has been performed to investigate the relationship of infertility stigma with its key determinants. The Cronbach alpha was found to be 0.728, thus the scale is reliable for the study. The mean infertility stigma score was 44.6 ± 9.11 . The dimensions like Social Withdrawal, Perceived Social Pressure, Experienced Stigma and Avoidant Coping emerged from the psychometric analysis, social pressure having the highest score (16.90 ± 4.64). The study found that prolonged MAR treatment duration is significantly associated with higher levels of stigma ($RRR=7.85$, C.I.:1.26, 48.94), while sociodemographic factors like age, years of marriage, family structure, and delay in medical consultation were associated with moderate levels of stigma. Enhancing community awareness, providing adequate counselling during treatment, and fostering a supportive environment can strengthen the emotional resilience of women seeking infertility care during this crucial period.

10451: Health Systems and Household Burden: Composition of Elderly OOP Expenditure in Haryana

Vishal & Aswini Kumar Nanda

Geriatric healthcare remains a costly affair for most of the households in Haryana, a 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. This paper tried to examine the broad composition of out-of-pocket health expenditure by type of care and type of facility used among the households with at least one elderly in the northern Indian state of Haryana. The existing study also fills the gap of measuring components of OOPHE on older people by medical and non-medical expenditure, capturing detailed composition of the average OOPHE on elderly by socio-economic background characteristics. 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 2020-21 in the state. In view of high OOPHE on the elderly in Haryana, it is imperative that such expenditures are disaggregated, evaluated and contextualised to understand the role and dynamics of various components.

Technical Session – 4.2

Demographic Methods and Models

The Evolution of Population Projection Models: Demographic Models, Uncertainty Modelling, and Machine Learning Innovations

Preeti Dhillon

Accurate population projection is essential for policy formulation, social planning, and resource allocation. Over the decades, a range of methodological frameworks have evolved to forecast demographic change, each reflecting different assumptions and data requirements. This paper presents a systematic methodological review of population projection approaches, tracing the evolution from traditional demographic models to uncertainty-based models and the emerging machine learning-based systems. It begins by examining classical techniques such as mathematical extrapolation, uncertainty-based models, and the widely used Cohort Component Method (CCM), highlighting their reliance on fertility, mortality, and migration data, and their inherent limitations in dynamic or data-sparse contexts. Studies on mortality forecasting suggest a significant impact of the use of a specific life table statistic as input on the forecast results. Earlier projections adopted the UN model life tables and the Lee–Carter model, which is further extended by using Bayesian hierarchical model for life expectancy at birth. Similarly, deterministic assumptions or low-medium-high fertility assumptions have evolved to probabilistic forecasting capabilities. However, there is still a scope of modelling migration uncertainty in further research. The latest UNDP's world population prospects (WPP) underestimated population of India from the census 2011 counts, the official projections by the Registrar General of India also give the similar underestimation (1-2%). However, subnational projections in some of the states were having higher differences from the census count. Indian literature also documents the use of ratio methods for district-level projections, underscoring the growing importance of refining small-area estimation. The paper then synthesizes recent advancements in machine learning-based forecasting, which remains at an early stage of development. These models such as LSTM networks, gradient boosting (XGBoost, LightGBM), support vector machines (SVMs), neural networks, and hybrid architectures like ES-RNN enable high-resolution, short-term, and subnational projections by capturing complex temporal patterns and integrating non-demographic variables such as economic, spatial, and environmental factors. A notable trend in recent research is the use of satellite imagery, building footprints, and social cartography for small-area estimation, especially in post-census or data-scarce regions. Geodemographic and microsimulation methods further enhance spatially detailed projections by modelling local variations such as urban growth and population aging. The synthesis emphasizes the potential of hybrid modelling approaches that combine the demographic rigor and interpretability of traditional methods with the adaptability and predictive strength of ML techniques. Such integration is vital for developing reliable, context-sensitive population forecasts to support policymaking in an era of rapid social, technological, and environmental change.

10680: Machine Learning Framework for Fertility Determinants with Integrated Feature Selection and Data Imputation Techniques

Rakesh Kumar Saroj

Introduction and Objective: Declining fertility rates pose critical demographic and socioeconomic challenges. Identifying key determinants requires advanced methods capturing complex, non-linear relationships. This study uses machine learning with data imputation and

feature selection to uncover major fertility drivers. Methodology: Using NFHS-5 data specific to Sikkim ($n = 3, 271$; 45 variables), missing data were classified as MCAR, MAR, or MNAR through Chi-square tests and logistic regression. Imputation was performed using Mode, KNN, and MICE methods. Feature selection integrated filter (\hat{A}^2 , Mutual Information, Pearson's r), wrapper (RFE, Stepwise Regression), and embedded approaches (Random Forest, XGBoost, CatBoost, LightGBM, LASSO, SHAP, Permutation Importance). Models were trained with a 70:30 split and evaluated using MAE, RMSE, and \hat{A}^2 . Results: The study analysed NFHS-5 data from Sikkim ($n = 3, 271$; 45 variables), addressing 18.9% missing values through systematic classification and imputation. Model performance improved significantly after imputation and feature reduction. Using all features post-imputation, XGBoost and CatBoost reached $\hat{A}^2 = 0.8029$, while with the top 15 predictors, LightGBM achieved $\hat{A}^2 = 0.8561$ and CatBoost $\hat{A}^2 = 0.8551$ with RMSE reduced to 0.47. Overall, post-imputation improvements were statistically significant ($+0.10$; $p < 0.01$), confirming the effectiveness of integrating imputation with feature selection in predicting fertility outcomes. Conclusion: Combining imputation strategies with feature selection enhances model accuracy and interpretability, uncovering robust fertility determinants. Findings highlight that delayed childbearing, rising education levels, contraceptive use, and fertility preferences are primary drivers of low fertility. These insights offer critical guidance for policy interventions, reproductive health programs, and sustainable demographic planning.

10503: Indirect Estimation of Fertility using Rele method: An Application to South Africa/Provinces/municipalities

Martin E Palamuleni

Introduction: In statistically underdeveloped countries, like South Africa, to estimate demographic parameters is still a challenge. As such, there is continued reliance of indirect estimation procedures and acceptable estimates are in most cases available at national level. However, there is increased demand to have reliable estimates of demographic parameters at subnational levels. Objective: The main objective of this study is to estimate fertility for South Africa and its subdivisions using the Rele method. Methodology: The study used age statistics from the 1996, 2001, 2011 and 2022 population censuses. Rele method was used to derive estimates of fertility at national, provincial and municipality levels. The method relies on a linear relationship between Gross Reproduction Rate and Child Woman Ratio. Results: At national level, Total Fertility Rate remained constant at 3.3 children per woman between 1996 and 2001 but declined to 2.8 and 2.4 in 2011 and 2022 respectively. There are variations in fertility by province, population groups and municipality. Fertility is lower among the affluent provinces and municipalities (such as Gauteng, Western Cape) than the disadvantaged provinces of Limpopo, Mpumalanga, Eastern Cape and North West. Further, the national and provincial estimates of fertility were compared with the estimates by other researchers and were found to be within acceptable range. Conclusion: Estimating fertility at subnation levels will help to understand fertility transition at the local level and monitor the success of population and development programs.

10491: Assessing Completeness of Death Registration in India: A Gender Lens

Chandan Kumar, Suryakant Yadav, Solveig Argeseanu Cunningham & Aashish Gupta

Reliable and timely mortality data from the civil registration and vital statistics (CRVS) system are crucial for generating policy evidence and monitoring national progress. This study aims to

assess the coverage of death registration by sex, year, and place of residence. It compares the coverage and quality of mortality reporting in the CRS (Civil Registration System) at both national and subnational levels. We estimated death registration completeness by sex, place of residence, and age group using deaths from the CRS and population estimates from the RGI projected population, GBD population, and UN-WPP population, based on the SRS death rate, GBD death rate, and unit-level data from NFHS 2019-21. We did SRS, GBD and NFHS death rates to examine death registration differentials in all age groups at the national and subnational levels from each data source. The completeness of death registration at the national level is substantially increasing in all data sources. Based on the SRS and RGI projected population, the death registration rate in India was 99.95% in 2020. There was a considerable difference in the completeness of death registration by sex (male: 100% and female: 91%) and by place of residence (rural: 82% and urban: 100%) in 2020. Based on the NFHS 2019-21, we found that the death registration level was higher in urban areas compared to rural areas (83% vs. 66%), among households with bank accounts (71%), and those covered by health insurance (77%). Population death differences were higher when the NFHS death rate was used than the SRS death rate. We suggest periodic awareness programs on death registration procedures and facilitating easy access to death registration offices in lower-performing states and areas among the marginalized population groups.

Technical Session – 4.3

Development, Migration, and Gender

How Migration Shapes Fertility Patterns, Contraceptive Behavior, and Child Composition

K.C. Das

Background: Migration remains a defining force shaping household dynamics, gender roles, and demographic outcomes in India. This study examines how male out-migration influences women's lives, particularly left-behind wives (WLB), across two contrasting regional contexts: Kerala and the Middle Ganga Plain (MGP) region, encompassing Bihar and Eastern Uttar Pradesh. Methodology: Drawing on data from the Kerala Migration Survey (2018) and the Middle Ganga Plain Survey (2018–19), the analysis explores how remittances, autonomy, fertility behaviour, and health outcomes are mediated by social and economic contexts. The study focuses on married women aged 18–49, classified as wives of non-migrants (WNM) or left-behind wives (WLB). Descriptive, bivariate, and multivariate analyses were employed to examine contraceptive use, fertility outcomes, and household characteristics by migration status and region. Results: Findings reveal that migration significantly reconfigures women's household roles and reproductive behaviour, though the magnitude and direction of effects differ by region. Nearly half of the surveyed women were left behind due to their husbands' migration, with internal migration more common in the MGP region and international migration dominating in Kerala. Kerala demonstrates near-universal literacy, delayed marriage (average age 21 years), and low fertility (mean CEB = 1.3), while the MGP region exhibits early marriage (average age 16 years), low educational attainment, and high fertility (mean CEB = 3.0). Contraceptive use is markedly higher in Kerala (58%) than in the MGP region (42%). Regression findings indicate that women in the MGP region are 37% less likely to use modern contraceptive methods than those in Kerala. Moreover, left-behind women of internal migrants are 35% less likely, and those of international migrants 15% less likely, to use contraception compared to wives living with their husbands, with this disparity being statistically significant only in the MGP region. Longer migration duration (more than five years) and post-marital

migration are associated with higher contraceptive use, while remittance amount shows no significant effect. Fertility analysis further indicates strong regional variation. In Kerala, the husband's migration status does not significantly influence fertility, whereas in the MGP region, left-behind women exhibit lower mean CEB compared to wives of non-migrants, suggesting that spousal absence, reduced cohabitation, and altered reproductive intentions may contribute to fertility decline. Multivariate results show that women who are Muslim or Christian, economically active, household heads, have higher autonomy, or currently use contraception, are more likely to have a higher number of children ever born. In contrast, literate women and those whose husbands have migrated, particularly for internal work, tend to have lower CEB. Notably, left-behind women whose husbands migrated internationally, migrated for more than five years, or began migrating after five years of marriage are more likely to have higher fertility than those whose husbands migrated earlier or internally. A distinct finding relates to the sex ratio of children ever born: in both Kerala and the MGP region, left-behind women report a higher proportion of daughters compared to wives of non-migrants (Kerala: 1023 vs. 948; MGP: 946 vs. 893 female children per 1000 male children), suggesting that migration may modestly weaken son preference across regions. Conclusion: Overall, the findings highlight that male out-migration serves both as a catalyst for women's empowerment and a source of psychosocial strain. Regional context, shaped by family structure, religion, literacy, and migration type, mediates these outcomes. Kerala's international migration model supports higher autonomy, contraceptive use, and low fertility, while the MGP region reflects persistent fertility norms and constrained reproductive agency despite growing migration exposure. Policy interventions must therefore adopt region-specific, gender-sensitive strategies that promote reproductive health, enhance financial inclusion, and strengthen support networks for women left behind, recognizing them as pivotal agents in India's migration-driven demographic and social transformation.

Left-Behind Women: Policy Gaps, Concerns, and Future Directions

Archana K Roy

The large-scale out-migration of men from India's poorer regions has given rise to a growing population of left-behind women, whose lives are profoundly shaped by the absence of male household heads. This paper examines the socio-economic, psychological, and decision-making dimensions of these women's experiences across selected regions of Uttar Pradesh, Bihar, and Kerala, using evidence from the Migration and Gender Project (2018) and the Kerala Migration Survey (2018). Findings reveal that migration can simultaneously act as a source of empowerment and vulnerability. In many households, women assume greater financial and decision-making responsibility, reflecting a rise in autonomy and household leadership. However, this empowerment is uneven, constrained by entrenched gender norms, extended family control, and limited access to financial, social, and institutional resources. Regional contrasts are striking: while Kerala demonstrates relatively higher levels of autonomy due to remittance inflows and stronger social support systems, Uttar Pradesh and Bihar remain marked by restrictive mobility, low participation in self-help groups, and persistent dependence on other family members. Current policies fail to recognize left-behind women as an independent category of social concern, overlooking their specific vulnerabilities and potential for agency. The paper calls for migration-sensitive social protection frameworks, gender-inclusive remittance policies, and localized empowerment programs that strengthen financial literacy, mobility, and community participation. Addressing these policy gaps is critical to transforming migration from a gendered burden into a pathway for inclusive development.

10550: Employment Issues of Inter-district Migrants of Maharashtra in Mumbai

Sunil T. Sarode, Archana K. Roy, Suresh Jungari & Kunal Keshri

In modern times, migration is a common phenomenon to access better livelihood opportunities. There is a rigorous change in demographic pattern; therefore, there is a flow of migration towards the regions where they obtain better opportunities than in their place of origin. Most of these movements are leading from rural to urban areas, especially towards large and metropolitan cities, with an optimistic approach of better employment and greater living conditions. Mumbai is one of the preferred destinations for such movements, not only from other states but also from the different regions of Maharashtra. The focus of this study is on the migrants in Mumbai from different regions of Maharashtra. These migrants are mainly coming to Mumbai for the purpose of employment and living in Mumbai for a long period of time. The main aim of the study is to focus on the categories and employment profile of migrants from different regions of Maharashtra, and the study also attempted to assess the various challenges the migrants face in obtaining employment and the challenges at the workplace. The study had adopted a qualitative approach with in-depth semi-structured interviews of 60 participants and 6 focus group discussions from Western Maharashtra, Marathwada, Vidarbha, Northern Maharashtra, and Konkan. All participants were internal migrants residing in the slums of Mumbai's FN, S, and PN wards. According to the study, employment of inter-district migrants in Mumbai is particularly vulnerable, which is characterised by job instability, widespread informality, low pay, and adverse working conditions. The majority of migrants work in low-skilled occupations with little access to social security, formal contracts, or stable employment, like construction, housekeeping, and street vending. Men predominate in manual and skilled trades and face health risks and wage stagnation, while women are confined to underappreciated domestic roles and subject to family constraints. The employment challenges increased during the COVID-19 pandemic, which led to a large loss of jobs and a return migration. Migrants show resilience in the face of these obstacles by working multiple jobs, upskilling, and depending on social networks to survive. However, cycles of poverty and exclusion are sustained by systemic problems, such as inadequate access to healthcare, lack of documentation, and harassment by authorities. The findings highlight the critical need for inclusive labour laws that guarantee minimum wages, formalise employment, and provide migrant workers with social security. While streamlined documentation procedures and legal awareness campaigns may lessen bureaucratic exclusion, skill development programs and vocational training can improve employability. Stricter enforcement of occupational safety regulations and easily accessible grievance procedures are necessary to increase employer accountability.

Impact of migration on the socio-economic mobility of migrants in Mumbai

Suresh Jungari

This qualitative study explores the social and economic mobility of migrants in Mumbai within the state of Maharashtra, focusing on the long-term impact of intra-state migration from different regions of Maharashtra. Migration from rural to urban in India remains a pivotal phenomenon, yet the nuanced social and economic impacts on migrant communities, particularly in the context of intra-state migration to Mumbai from different regions of Maharashtra, are underexplored. Through in-depth semi-structured interviews with internal migrants residing in Mumbai's slums of FN ward, S ward, and PN ward, this study analyses the experiences of 60 individuals from Western Maharashtra, Marathwada, Vidarbha, Northern Maharashtra, and Konkan. By selecting participants who were the head of their households and

had lived in Mumbai for more than a year, the study establishes a framework to assess the lasting implications of migration on social and economic mobility. Thematic analysis was performed through inductive coding. Four patterns of socio-economic mobility have emerged—upward, downward, lateral and inter-generational. The characteristics of migrants, such as caste, gender, education, and marital status, played a major role in shaping their economic and social mobility. While many migrants experience economic mobility, social mobility remains constrained. Migrants are predominantly confined to low-wage, precarious jobs with limited career progression, while some have progressed through skill development. Migration paved the way for socio-economic mobility, particularly among women, as they entered the workforce. However, gender norms limited women's mobility as they were concentrated mainly in paid domestic work. Across both genders, inadequate education had stagnated their employment opportunities, leading to lateral mobility, especially for women. Factors like COVID-19, medical emergencies, the death of a primary breadwinner, and sudden unemployment eroded the achieved mobility of migrants. As some migrants experience economic mobility through their occupation, they hope for intergenerational mobility by prioritising their children's education. In some cases, it is observed that economic mobility does not necessarily translate into social mobility, due to subtle caste discrimination and structural barriers. Addressing systemic hindrances through targeted policy interventions in employment, education, and social inclusion is crucial for ensuring sustainable and equitable mobility for migrants.

Migration Drivers and Process for Maharashtra's Inter-District Migrants

Kunal Keshri

Maharashtra's demographic landscape is characterised by rural-to-urban migration, with Mumbai serving as the main destination. The complex push-pull dynamics and multidimensional process of inter-district migration to Mumbai are examined in this qualitative study. Its objectives are to understand the characteristics, patterns, and drivers of inter-district migration from different regions of Maharashtra to Mumbai, and to study the process of migration, including the role of networks and individual and household decision-making. This research draws on in-depth semi-structured interviews of 60 participants and 6 focus group discussions from Western Maharashtra, Marathwada, Vidarbha, Northern Maharashtra, and Konkan. All participants were internal migrants residing in the slums of Mumbai's FN, S, and PN wards. The study records in-depth descriptions of pre-migration circumstances and the migration process by choosing participants who were the heads of their households and had resided in Mumbai for more than a year. Inductive coding was used for thematic analysis. The analysis reveals that a combination of strong push factors from rural areas and pull factors from urban areas drives migration. Rural livelihoods became unsustainable due to agrarian collapse brought on by climate vulnerabilities, human-wildlife conflict, and land fragmentation, as well as structural unemployment and stagnant wages. Mumbai's year-round employment, better pay, and variety of opportunities make it appealing for migrants across the state. The key component that lowers migration risk is social networks, which offer prearranged jobs, initial settlement, and financial assistance for travel and settlement. Although there is evidence of individual agency, decision-making is frequently a collective household survival strategy. There is a clear gendered difference, where women migrate more often as a necessity due to widowhood or family responsibilities, which forces them into less independent and more precarious work in the informal sector, whereas men migrate primarily for employment. The study concludes that social capital facilitates the complicated, non-linear process of migration to Mumbai, which is fuelled by structural rural deficits. Policy interventions must go beyond considering migration as merely an economic decision. Agrarian incomes should be stabilised by investing in rural

infrastructure and irrigation, non-farm employment opportunities should be established in regions of origin, and formal credit and skill development programs should be strengthened to lessen reliance on social networks. Internal migration in India is a multifaceted phenomenon encompassing rural–urban, seasonal, and circular movements, driven by agrarian distress, unemployment, and aspirations for improved livelihoods. While considerable research has examined inter-state migration, studies on intra-state migration in Maharashtra remain limited, particularly with reference to Mumbai, the state’s largest urban destination. Inter-district migration to Mumbai dominates the state’s migration landscape, influenced by a combination of powerful push factors—such as climate vulnerabilities, agrarian collapse, and land fragmentation—and strong urban pull factors, including year-round employment, higher wages, and opportunities facilitated by established social networks. This qualitative study explores the multidimensional processes and complex push–pull dynamics underlying migration to Mumbai. Its objectives are to examine the characteristics, patterns, and drivers of inter-district migration, and to assess the role of social networks and household decision-making in shaping migration trajectories. The study draws upon in-depth semi-structured interviews with 60 participants and six focus group discussions conducted with migrants from Western Maharashtra, Marathwada, Vidarbha, Northern Maharashtra, and Konkan, all residing in the slums of FN, S, and PN wards of Mumbai. The participants, largely household heads who had resided in Mumbai for over a year, shared detailed narratives of pre-migration conditions and migration experiences. Thematic analysis using inductive coding highlights that migration is driven by overlapping structural deficits in rural regions and opportunities in urban areas. Key rural push factors include agricultural decline due to climate change, human–wildlife conflict, land fragmentation, structural unemployment, and stagnant wages. Urban pull factors, such as steady employment, better earnings, and livelihood diversification, make Mumbai a preferred destination. Social networks significantly reduce risks by arranging jobs, providing housing, and facilitating financial support during initial settlement. While individual agency influences migration choices, decisions are more often collective household strategies for survival. Gendered dimensions are also evident: men primarily migrate for employment, while women’s migration frequently results from widowhood or family responsibilities, often confining them to precarious informal work. The study concludes that migration to Mumbai is a complex, non-linear process shaped by structural rural deficits and enabled by social capital. Policy responses must move beyond viewing migration solely as an economic choice. Strengthening rural infrastructure and irrigation, stabilizing agrarian incomes, promoting non-farm employment opportunities, and expanding access to formal credit and skill development are essential to reduce overdependence on informal networks and to ensure more secure and equitable migration outcomes.

Technical Session – 5.1

Health Care Utilization

10695: Family Structure and Maternal Healthcare Utilization in West Bengal: A 30-Year Mixed-method Perspective

Sourav Mondal & Manas Ranjan Pradhan

Maternal healthcare utilization is shaped by multiple socioeconomic and demographic factors, with family structure playing a particularly crucial role. Yet, this dimension has received limited research attention. This study examines the impact of family structure on maternal health service utilization among women in West Bengal over the last three decades, employing a mixed-methods approach. The analysis integrates data from five rounds of the National Family Health Survey and primary qualitative interviews conducted in West Bengal. Quantitative analyses employed bivariate and multivariate models (Stata), with family structure categorized as: (i) nuclear, (ii) non-nuclear with only mother-in-law (MIL) or sister-in-law (SIL), (iii) non-nuclear with both MIL and SIL, and (iv) non-nuclear without MIL or SIL. Covariates included age, education, parity, media exposure, wealth, religion, caste, residence, antenatal visits, institutional delivery, and interaction with grassroots health workers. For qualitative data, thematic analysis was done in NVivo software. Family structure significantly influenced maternal health service utilization, with notable temporal shifts. In 2005-06, women in families with only MIL or SIL were 53% more likely to receive full ANC (AOR = 1.53) than those in nuclear families, whereas those living with both MIL and SIL were 54% less likely to deliver in an institution (AOR = 0.46). By 2015-16, women with only MIL or SIL were 26% more likely to have institutional delivery (AOR = 1.26). In 2005-06, non-nuclear families without MIL or SIL also showed higher utilization (AOR = 1.76). Qualitative evidence suggests a decline in the role of the extended family, as couples increasingly make independent decisions, driven by improved access to health services, government incentives, and the active involvement of frontline health workers. Strengthening community health services and engaging extended families can further boost maternal healthcare gains.

Trend and Patterns of Medical Care and Hospitalization Prior to Death among Tribes in India

Shatrughan Prasad

Tribal populations are known by various names across different countries, such as Tribes in India, Shipibo in Peru, Bhotiya in Nepal, and the San (Bushmen) in Africa. India has the largest Tribal population globally, with around 104 million people identified as "Scheduled Tribes," making up approximately 8.6 percent of the country's total population. These communities, totaling over 700 distinct tribal groups, are spread across various states and regions in India, each possessing unique languages, cultures, and traditions. Tribal communities often face significant health disparities, with lower levels of health status, challenges in accessing healthcare, and reduced healthcare-seeking behavior. This study found that Tribal populations in India exhibit lower rates of medical care and hospitalization before death compared to other groups. Among elderly tribal groups, hospitalization rates are notably lower than those of the non-Scheduled Tribes and Scheduled Castes (non-STs/SCs). The objective of this study is to examine the trend and pattern of medical care and hospitalization prior to death among Tribal population in India. Hence to fulfill the objectives, the data is obtained from the latest two round of National Sample Survey (NSS) that is 71st and 75th round which is collected on Social

Consumption of Health (SCH), collected during 2014 and 2018 respectively. Moreover, the descriptive statistics and simple logistics regression is applied to analyze patterns of medical care and hospitalization before death among Tribal populations in India. The study found that from 2014 to 2018, medical treatment and hospitalization rates among tribes declined, possibly due to improved disease management and use of accessible, low-cost healthcare. Non-hospitalization reasons included deaths before reaching hospitals and perceived minor ailments. These trends emphasize improving healthcare access in rural, hilly, and remote tribal regions.

Is water linked to anaemia? Some reflections

Aparajita Chattopadhyay, Lobsang Bhutia, Arup Jana, Unnati R Saha, Sourav Biswas

Anaemia among women is a major public health concern with serious consequences for both mothers and children. This study systematically presents three narratives of water and examines different dimensions of its impact to demonstrate that water plays a significant role in determining women's anaemia, even after controlling for multiple covariates using Demographic Health Surveys, satellite-derived indicators, and groundwater data. The findings indicate that women who rely on groundwater sources, such as tube wells and wells, for drinking water exhibit higher rates of anaemia. Riverine areas in humid subtropical regions show pronounced clusters of anaemia hotspots, corresponding to regions highly vulnerable to mosquito-borne diseases. Moreover, groundwater contaminants exceeding permissible limits are strongly associated with increased odds of anaemia, with arsenic showing the strongest effect (AOR = 1.11), followed by nitrate (AOR = 1.07), total dissolved solids (AOR = 1.10), and electrical conductivity (AOR = 1.07). Ensuring water quality and safety is fundamental to tackling anaemia effectively.

10545: Quantifying Disease Risk on Disability Onset in India

Rashmi Rashmi & Sanjay K. Mohanty

Disability in India remains a pressing public health concern, yet most research focuses primarily on its prevalence rather than on the crucial questions of when and why it begins. This study addresses this critical gap by quantifying the role of diseases in accelerating the onset of physical disabilities. Using nationally representative data from the National Sample Survey, we apply risk models within a survival analysis framework to examine the timing and determinants of disability onset. - The analysis reveals that disease-related disabilities consistently occur much earlier in the life course than those arising from non-disease causes. For instance, disease-related locomotor disability begins around age 30, compared to age 48 for non-disease-related cases. This earlier onset affects individuals during their most productive years and disproportionately impacts vulnerable groups, with those in the poorest wealth quintile experiencing disease-related locomotor disability onset as early as age 14. The risk models further demonstrate that disease-related disability risk is highest in early life. At age five, diseases account for over 22% of all visual and speech or language disability onsets, indicating that nearly one-fifth of such early cases could be prevented if underlying diseases were addressed. This influence, however, declines with advancing age as age-related processes become more dominant. Overall, the findings underscore that diseases act as silent accelerators of disability, particularly among younger and socioeconomically disadvantaged populations. By providing a quantified measure of preventable risk, this study offers critical evidence to inform national health policy, emphasising the need for strengthened preventive care and early disease management as key strategies for reducing disability in India.

Technical Session – 5.2

Epidemiological Transition and Disease Burden

10713: Where there is One, there is Multimorbidity Contributing to the High Risk of Heart Diseases in Low Socio-Economic Spectrum of India

Ajay Kumar, Suryakant Yadav, Solveig A. Cunningham, Dongmei Zuo & Arokiasamy Perianayagam

Within the spectrum of non-communicable diseases (NCDs), the burden among older adults in India is predominantly driven by degenerative diseases and conditions. Over the past decade, this burden had exhibited a cascading effect, increasingly manifesting as the mounting prevalence of multimorbidity. This study estimated that over half of the adult population aged 45 years and above (50.94%) experienced multimorbidity, with a pronounced and accelerating prevalence gradient of up to four to six diseases/conditions across the 45-84 years age groups, and the highest prevalence of 26% was observed in those aged 80 years and above. Among all diseases and conditions, hypertension emerged as the most prevalent condition, affecting 26.72% of older adults. Furthermore, the disease network analysis identified hypertension as the most central and interconnected condition in India's morbidity spectrum, followed by eye conditions and gastro-intestinal conditions. Notably, hypertension also exhibited significant interdependence and perilous linkages with life-threatening diseases such as heart diseases, underscoring its pivotal role in the broader multimorbidity framework. The Classification and Regression Tree (CART) model further reveals that the co-occurrence of hypertension and high cholesterol, along with prolonged hypertension duration, significantly elevated the risk of heart diseases. Importantly, this risk was not solely driven by the co-occurrence of diseases and conditions; it was also significantly intensified among socioeconomically disadvantaged individuals in the oldest-old population.

10549: Trends in Dengue Incidence, Mortality, and Disability-Adjusted Life Years in South Asia: Evidence from the Global Burden of Disease Study 2019

Saurabh Singh

Background: Dengue fever has escalated into a major public health concern in South Asia, exhibiting increasing trends in incidence, mortality, and Disability-Adjusted Life Years (DALYs). Methods: Utilizing data from the Global Burden of Diseases, Injuries, and Risk Factors Study (GBD 2019), this analysis examines the age-standardized incidence rate (ASIR), age-standardized death rate (ASDR), and DALYs for dengue in South Asian countries i.e. Bangladesh, Bhutan, India, Nepal, and Pakistan. Join point Regression Analysis was used to identify points of significant change in trends and to understand the dynamics of dengue spread and impact over the study period. Results: The results reveal a general increase in ASIR across all countries, with Bangladesh and Bhutan showing the most significant uptrends (AAPC of 0.79 and 0.81, respectively). Mortality trends indicated notable increases, particularly in Pakistan (AAPC of 3.08) and Nepal (AAPC of 2.50), underscoring the escalating fatal impact of dengue. Additionally, DALYs rose across the region, highlighting the enduring health, social, and economic consequences of dengue. Conclusion: The increasing trends in dengue incidence, mortality, and DALYs in South Asia underscore the urgent need for enhanced surveillance, effective vector control strategies, and improved healthcare response. The findings advocate for a multidisciplinary approach to dengue management, incorporating climate adaptation strategies, community engagement, and international cooperation to mitigate the

dengue burden. This study contributes to the understanding of dengue epidemiology in South Asia, offering critical insights for public health planning and the development of targeted interventions.

Keywords: Dengue, Incidence, Mortality, DALYs, Trends, South Asia, GBD.

10683: Life Expectancy during Pandemic Period in India

Suryakant Yadav, Chandan Kumar, Pravat Bhandari & Dilip TR

The life expectancy at birth in India declined by 1.6 years during the COVID-19 pandemic, between 2020 and 2021. While this reduction was not among the most severe globally and broadly aligned with the international average, it nonetheless effectively erased much of the progress India had made in improving life expectancy over recent decades. The pandemic's disproportionate mortality impact on males further widened the long-standing male disadvantage in life expectancy. Moreover, states with already low pre-pandemic life expectancy suffered greater losses, potentially widening regional disparities and contributing to a more disparity in mortality across the country. The disproportionate losses in life expectancy among males and across disadvantaged regions signal the need for systemic recovery efforts to improve survival outcomes at the national level.

Trend Transitions in Tuberculosis Control in India: Insights from Join Point Analysis, 2000–2023

Pravin Kumar Singh

Background: Tuberculosis (TB) remains one of India's most pressing public health challenges and contributes significantly to the global burden. Over the past two decades, the National TB Elimination Programme (NTEP) has expanded molecular diagnostics, community-based screening, and treatment access. However, TB trends are shaped by social determinants, programmatic gaps, HIV co-infection, drug resistance, and COVID-19. Understanding how these factors influenced TB indicators is critical for identifying turning points and guiding elimination strategies. **Objective:** To examine trends in key TB indicators from 2000 to 2023, identify inflection points, and generate insights for evidence-based elimination strategies. **Methods:** Thirteen indicators—including incidence, case notifications, drug resistance, and mortality—were extracted from India's TB Reports and WHO Global TB estimates. Trends were analyzed using Joinpoint regression, with Annual Percentage Change (APC) and 95% confidence intervals quantifying shifts in magnitude and direction. **Results:** TB incidence rose sharply in 2002–2004 (+49.34%/year, $p < 0.001$) and 2012–2015 (+32.79%/year, $p < 0.001$), before gradually declining. TB–HIV co-infection consistently decreased, with steep declines in 2000–2003 (–13.29%/year, $p < 0.001$) and after 2011 (–11.99%/year, $p = 0.001$). Extrapulmonary TB increased in 2000–2008 (+10.90%/year, $p = 0.003$) and 2017–2020 (+17.13%/year, $p = 0.008$). Rifampicin-resistant TB declined in 2015–2019 (–5.50%/year, $p < 0.001$) but plateaued thereafter, while MDR/RR-TB detection rose until 2019, then declined. Notifications surged in 2000–2004 (+49.21%/year) and 2014–2021 (+6.35%/year, $p = 0.003$), but collapsed in 2021–2023 (–28.07%/year) due to COVID-19. Pediatric TB fluctuated, while mortality steadily declined in 2000–2018 (–5.44%/year, $p < 0.001$), with sharp reductions among HIV-positive patients after 2012 (–19.41%/year, $p < 0.001$). **Conclusions:** India has achieved progress in reducing TB–HIV co-infection and mortality; however, periodic surges in incidence, persistent drug resistance, pediatric gaps, and COVID-19 setbacks remain challenges. Meeting the 2025 elimination target requires intensified case detection, resistance control, and resilient patient-centered services.

Determinants of Morbidity and Multi-morbidity among Indian Population: Large Scale databased Evidence

Nihali Bhoir

Globally, one in three adults suffer from multimorbidity. The challenges of multimorbidity in low-middle income countries are accentuated by social inequity, environmental degradation and inefficiencies in health systems. This study examines the prevalence and determinants of multi-morbidity across population sub-groups using the database of 71st round of National Sample Survey. ‘Multi-morbidity’ is operationalised in terms of ‘number of hospitalizations.’ Individuals reporting multiple hospitalizations due to multiple ailments are considered as a case of multi-morbidity. We find that 8.43% adults reported multimorbidity. Pearson’s chi squared test is performed to see whether any relationship exists between its episode and socio demographic characteristics. Elderly and women are the commonly affected groups. Binary logistic regression analyses show a significant association between multi-morbidity and variables like age, gender, geographic zones and the insurance coverage. The study manifests novel approach of defining ‘multi-morbidity’ and highlights the need to design age and gender specific combating strategies.

Technical Session – 5.3

Population Ageing

Ageing, Mental Health, and Healthcare Expenditure in Kerala: A Review of Current Trends and Implications

Ajay K Singh

Kerala, India’s southernmost state, is renowned for its high human development indicators, including literacy, life expectancy, and overall health outcomes. Despite these achievements, the state faces emerging challenges related to population ageing, rising healthcare costs, and increasing mental health concerns among older adults. The proportion of elderly individuals is projected to rise from 16.5% in 2021 to 26% by 2036, reflecting a demographic transition with significant social, economic, and health implications. This review synthesizes secondary data to examine demographic trends, assess healthcare expenditure, and explore mental health prevalence among Kerala’s elderly. Findings indicate that Kerala has the highest median age in India (35.12 years in 2021) and one of the largest old-age dependency ratios, placing substantial strain on the healthcare system. Out-of-pocket expenditures exceed national averages, with urban households spending Rs. 10,341 and rural households Rs. 8,655 annually on hospital care. Mental health disorders affect approximately 11.36% of the population, with elevated rates of depression and anxiety among institutionalized or socially isolated elderly. Contributing factors include migration of younger family members, shrinking social networks, and limited community engagement. Addressing these challenges requires integrated interventions, including strengthening geriatric and mental health services, expanding financial protection, and promoting community-based social care to ensure healthy and dignified ageing.

Determinants of Seeking Economic Support / Assistance among Elderly Widows in Puducherry District

Nirmala Saravanan Narayanasamy

In Indian context, an overwhelming percentage of elderly widows need monetary resources for their survival during old age as most of them are likely to live in poor and/or poverty conditions. In light of this, in this paper, the researchers made an attempt to understand the extent of seeking economic support / assistance (for two basic needs such as food and day-to-day expenditure) and its principal determinants. Primary data has been collected from 390 elderly widows (30 PSUs comprising 20 rural villages and 10 urban wards) in the Puducherry district. The extent of seeking economic support / assistance for two basic needs such as food and day-to-day expenses is formed as the dependent variable, and selected background characteristics of respondents are considered as independent (explanatory) variables. Around 57% of elderly widows reported that they use to seek economic support for any one or both the needs under study. Results based on cross-tabular analysis with a Chi-square test of significance showed differentials in the extent of seeking economic support/assistance by elderly widows are largely on the expected lines (significant at different levels) across their background characteristics under consideration. Findings from multivariate logistic regression analysis highlighted that elderly widows who are modestly higher in age (66–75 years), ascribed widowhood at advanced ages (61+ years), belonged to medium and higher family income brackets (Rs. 3001-9000 and Rs. 9001, above), have 3+ daughters and living in urban areas are seeking economic support/assistance significantly ($p < 0.001$, $p < 0.01$ or $p < 0.05$) to a greater extent than their respective counterparts. Conversely, the elderly who have had middle school, above level education, belonged to other backward castes, whose functioning ability (IADL) is moderate, higher level and owning a house have exhibited lesser tendency to seek such economic support/assistance. Theoretical explanations and policy implications are discussed.

Linking Elder Mistreatment to Depression: Mediating Roles of Sleep, Health and Functional Limitations

Hemant Singh Gurjar

Purpose: This study examines the association between Elder Mistreatment (EM) and Depression among older adults in India, highlighting the role of poor sleep, health and functional mediators. **Design/Methodology/Approach-** Study uses cross-sectional data from the Longitudinal Ageing Study in India (2017-18) with 30,778 participants aged 60+, EM was measured through self-reports, while depression was measured using the Centre for Epidemiological Studies Depression Scale (CES-D-10). **Findings:** The prevalence of EM was 5.2%, with higher rates among females. Logistic regression showed that depression significantly increased the likelihood of EM (AOR = 2.34 for females; AOR = 1.94 for males, $p < 0.001$). Mediation analysis (Karlson-Holm-Breen method) identified poor sleep (8.2%), health (8.0%) and functional difficulties (5.5-7.6%) as significant mediators, with more potent effects in females. **Conclusion/Originality:** There is currently no research in India that explores the role of poor sleep, health and functional mediators in the association between EM and depression. The insights gained from this study can inform health practitioners and policymakers in designing focused interventions, such as programs aimed at improving sleep quality, enhancing functional health and implementing gender-responsive strategies, to mitigate the risk of EM and promote better mental health among older adults, especially females.

10511: Migration and Well-Being in India's Aging Population: A Perspective from LASI

Tribeni Sonowal & Manish Lekhwani

Migration, a major life event, may alter the level of life satisfaction of an individual. In any circumstances, a change of residence for even a single individual affects the socio-economic wellbeing of the entire family; while in couples it has been found to influence their life satisfaction as well. This paper explores the impact of migration on couples' life satisfaction in later life, comparing cases when none of them have migrated, only one has migrated, and when both of them have migrated and the factors that affect the life satisfaction of all three categories. The paper uses the data from the LASI (Wave 1) with over 73,000 participants from which a couple dataset of 21,831 couples was curated. In this study, univariate and bivariate analyses are performed with a chi-square test on couples in all three migrant categories and logistic regression method. The life satisfaction score was calculated using the LASI's life satisfaction scale, the couple in top 20% of life satisfaction score were considered to have a high life satisfaction. The couples having concordance in migration status (when none of them migrated and when both of them migrated) were having higher life satisfaction 41.2% and 40.8% respectively and for those having discordance (only one spouse migrated) the life satisfaction was 36.2%. The life satisfaction in couples ranged from 53.8%, 48.0% and 48.9% when both spouses have more than 10-years of education to 3.4%, 5.5% and 3.8% when both of them were not satisfied with their living arrangement for couples where both spouses, only one spouse and no spouse have migrated. Studying concordance is becoming crucial in the coming times as the structure of relationships has become complex. This study provides a scope for developing theories on health concordance and testing new and advanced methods among the more diverse population.

Perceived Everyday Discrimination of Elderly: New Evidences in India

T.V. Sekher

Perceived discrimination is the perception of prejudice or unjust treatment based on personal attributes such as age, gender, race, social class, caste, religion, disability, and physical appearance. Perceived discrimination can discourage or make it cumbersome for individuals to access essential services, facilities, and institutions. Considering India's diversity, in terms of caste, class, religion, region, and language, discrimination can take on varying forms across social-structural locations. This study attempts to examine the link between perceived discrimination and the subjective social status-SSS (a measure of one's own position relative to others in society). Data from the Longitudinal Ageing Study in India (LASI), a heterogeneous sample of a nationally representative aging population (by interviewing more than 30,000 older adults aged 60 years and more), was utilized for this analysis. Subjective social status examined by using the MacArthur scale with a ladder technique, and the perceived discrimination evaluated with the shorter version of Everyday Discrimination Scale. Elderly with low SSS reported age, gender, caste, financial and health status as reasons for perceived discrimination, and that this association persisted even after considering objective indicators of Socio-Economic Status (SES). Caste emerged as a significant factor for discrimination by rural, but not urban residents. Older women, not men, reported gender as a source for discrimination, reflecting persisting gender inequality in India. Those with multiple stigmatized identities may likely to report heightened levels of perceived discrimination in India. Understanding these nuances is important for designing guided interventions and policies that tend to the specific needs and challenges endured by elderly people of diverse social and economic backgrounds.

Poster Session – 1

Demographic Transition

10665: A Study of Association between Grandchild Care and Depression among Elderly Individuals in India

Anukul Barman

Introduction: Grandchild caregiving plays an important role in intergenerational family support systems in India. While caring for grandchildren may strengthen family bonds, it can also impose emotional and physical strain on older adults. This study investigates the association between grandchild care intensity and depression among the elderly using nationally representative data from India. **Methods:** The study utilized data from Wave 1 of the Longitudinal Ageing Study in India (LASI, 2017-2018). Older adults aged 60 years and above were included in the analysis. Logistic regression models were employed to examine the relationship between different intensities of grandchild care and depressive symptoms. Grandchild care was categorized as: no care, low care (<15 hours/week), medium care (15-30 hours/week), and extensive care (>30 hours/week). Depression was assessed using a standardized scale included in the LASI survey. **Results:** - Findings indicate a significant association between caregiving intensity and depression. Compared to non-caregivers, older adults providing low levels of care had higher odds of depression (OR = 1.20, 95% CI = 1.03-1.38). Those engaged in extensive caregiving also showed an elevated risk (OR = 1.30, 95% CI = 1.00-1.68). However, medium caregiving intensity (15-30 hours/week) was not significantly related to depressive symptoms (OR = 1.11, 95% CI = 0.89-1.38). **Conclusion:** The study highlights that both limited and heavy engagement in grandchild care is linked to greater depressive symptoms among older adults in India. These results underscore the dual nature of caregiving, providing both purpose and potential stress. Policymakers and community programs should focus on offering emotional and social support to elderly caregivers to ensure their mental well-being while maintaining intergenerational cohesion.

10640: Survival Analysis of Infant Mortality and Its Associated Determinants in India: A Study Based on National Representative Sample

Shahbaz Ali

Introduction: Infants are vulnerable to many diseases; where infants are in good health, that area is developing; therefore, the Infant Mortality Rate (IMR) is often taken as a crude indicator of the overall health status of any country. **Methods:** In this study, a sample of 2,32,920 is taken from Kid's file of the National Family Health Survey -5 (2019-21). We have utilized bivariate analysis followed by a Cox-proportional hazard model to examine the determinant of IMR in India. **Results:** The result shows that the cumulative probability of an infant surviving is almost 91 percent. Cox Model Regression for infant mortality shows that rural women have a higher risk of child mortality compared to urban women (HR=1.05, CI=1.04-1.07, p-value <0.001); education and wealth quintile also significantly impact infant mortality. - **Conclusion:** The results from the Cox regression models showed that wealth index, marital status, place of residence, gender, mother's age at birth, and the size of the child at birth influence the risk of child mortality in India.

10675: Financial Freedom among Indian Married Women- A State-Level Analysis

Sefali Verma

Women constitute nearly half of India's population, but continue to face limited access to economic resources and decision-making power. Financial freedom, defined as access to and control over earnings, assets, and resources, is central to empowerment yet remains unevenly studied across states. This study constructs a Financial Freedom Index (FFI) for married women in India and explores regional variations and determinants of financial autonomy using data from the National Family Health Survey (NFHS-5, 2019-21). Nine indicators across four dimensions were included: (1) labour market outcomes (employment, income parity with husband), (2) financial agency (bank account, mobile financial transaction, loan access), (3) control over resources (say in earnings, major household expenditure), and (4) asset ownership (land and house ownership). Each indicator was equally weighted, and a composite FFI was created using additive aggregation. Reliability was tested with Cronbach's alpha (0.68). Results reveal wide inter-state disparities. Only 26.6% of married women reported paid work, ranging from 11.3% in Lakshadweep to 48.3% in Meghalaya. Income parity with husbands is 45.2% nationally, being lowest in Himachal Pradesh (26.9%) and highest in Dadra & Nagar Haveli (59.3%). While bank account ownership exceeds 90% in Tamil Nadu and Puducherry, just 13.8% use mobile phones for financial transactions. Loan access averages 11.3%, peaking in Andhra Pradesh (35.2%). Control over earnings (79%) and household expenditure (81%) is relatively stronger, with Nagaland performing the best. Asset ownership varies greatly from 77.5% home ownership in Meghalaya to 15.6% in Andaman & Nicobar Islands. The FFI is highest in Meghalaya and lowest in Lakshadweep and West Bengal. Findings highlight persistent inequalities, with women showing greater household decision-making power but limited economic and digital financial autonomy.

10512: Life Satisfaction Among the Elderly in Old Age Homes and Family Settings in Uttar Pradesh: A Socio-Economic and Regression-Based Analysis

Anil Kumar Pal

Background: Life satisfaction is a critical indicator of well-being in old age. As traditional family structures evolve in India, understanding how housing arrangements impact the life satisfaction of the elderly is crucial for policy and care. Objective: This study compares life satisfaction levels among elderly individuals residing in old age homes versus family settings and identifies key socio-economic determinants. Methods: A cross-sectional comparative study was conducted with 364 elderly individuals (aged 60+), comprising equal samples from old age homes (n=182) and family settings (n=182) in Uttar Pradesh, India. Life satisfaction was measured on a three-level scale (Low, Medium, High). Bivariate analyses (Chi-square) explored associations between socio-economic variables and life satisfaction. An ordered logistic regression model was used to identify adjusted odds ratios (AORs) for predictors of higher life satisfaction. Results: A significantly lower proportion of the elderly in old age homes reported high life satisfaction (21.4%) compared to those in family settings (47.8%). After adjusting for confounders, residence in an old age home remained a strong independent predictor of lower life satisfaction (AOR=0.38, 95% CI: 0.21-0.68, $p<0.01$). Being female (AOR=0.55, $p<0.05$) and belonging to Other Backwards Class (AOR=0.45, $p<0.05$) or Forward Caste (AOR=0.42, $p<0.05$) compared to the Scheduled Caste were associated with lower odds of high satisfaction. Conversely, being currently married (AOR=2.14, $p<0.05$) or widowed (AOR=2.45, $p<0.01$) versus never married, and owning assets (AOR for no assets=0.36, $p<0.01$) significantly increased the odds of higher life satisfaction. Conclusion: This study

highlights a substantial disparity in life satisfaction, favouring elderly individuals living in family settings. Marital status, gender, caste, and economic security are significant determinants.

10708: Baseline Report on Knowledge, Attitude and Practices (KAP) among School Students on the specific Thematic areas of the School Health, Wellness Programme in Kerala

Rajesh J. Nair

Ayushman Bharat - School Health and Wellness Programme (SHWP) is a comprehensive programme which envisages holistic development of the students in India. Kerala has not yet implemented the programme. A base-line survey meanwhile will be of great use to assess the prevailing level of awareness among the school children in the state. The present study collected information from students in the 8th standard of two districts- Alappuzha and Palakkad. A sample of 436 students was interviewed with a structured schedule. Base-line survey collected information on 11 thematic areas. Children generally depend on their mother for revealing daily activities, however, as age increase the time spent with family members' decreases. Moreover, friends replace family members as the most dependent person in their life. Junk foods replace traditional breakfasts and dinner among the students. Only one tenth of the students like nutrient rich food items -egg, milk and nuts among the study population. Situation management skill is poor among the students. In general, students are more aware of their strengths than their weaknesses. Taboos regarding male dominance exist among the students. A sizeable portion of the students are having common misbeliefs on stereotyping roles of boys and girls like- boys don't cry, men are energetic, girls must be obedient etc. Awareness on narcotics, age-appropriate information on sexual health, bodily changes are not adequate among the students. Awareness on various national level programmes is inadequate among the students.

10714: Psychological Well-Being in Older Persons in India: The Role of Family

Vandita Ranjan

Introduction: India is undergoing a rapid demographic transition, with its elderly population (aged 60 years and above) projected to reach nearly 20% by 2050. This ageing process, combined with migration of adult children and the decline of joint families, has weakened traditional caregiving systems. As a result, older persons increasingly face emotional and psychological challenges that demand policy and research attention. Objective: The paper examines how family structure, marital status, and children's socio-economic characteristics influence the psychological well-being, specifically depression and life satisfaction, of older persons in India. Methodology: Using data from the Longitudinal Ageing Study in India (LASI), Wave 1 (2017-18), the study focuses on adults aged 60 years and above. Depression was measured using ten self-reported symptoms, and life satisfaction was assessed through five Likert-scale statements. Logistic regression analysis was applied to estimate the adjusted effects of family and household characteristics on mental well-being, controlling for socio-demographic and economic factors. Critical Findings: Results reveal that 28% of elderly persons experience depression, while over 55% report low life satisfaction. Living alone, being widowed, or residing in smaller households significantly increases vulnerability to poor mental health. In contrast, co-residence with spouse and children and larger family size are protective. The presence of at least one literate or employed child enhances life satisfaction and reduces depression risk. Interestingly, having both sons and daughters does not guarantee better well-being, highlighting that the quality of family relationships matters more than composition.

Conclusion: Family remains the primary source of emotional and social support for India's ageing population. Policies should strengthen family-centered care, community-based support, and mental health services.

10565: From Policy to Practice: Assessing the WHO Global Code of Practice on the International Recruitment of Health Personnel through the Lens of India's Nursing Workforce

Shruti Bhardwaj & Bino Paul

Objective: To mitigate the adverse effects of health human resources migration, the World Health Organisation, in 2010, adopted the WHO Global Code of Practice on the International Recruitment of Health Personnel. It's a non-binding instrument that aims to establish voluntary principles for the ethical international recruitment of health personnel, especially from shortage countries. However, to date, no study has reported the adoption, implementation, and adherence of the code in India, the second largest exporter of nurses. This study offers a first glimpse into the implementation progress of the code in India as well as stakeholders' perspectives regarding the fitness of the code in the Indian healthcare delivery system, especially in the nursing profession. Methods: The study adopts a qualitative approach, integrating document analysis with key informants' interviews. A document analysis was conducted using grey literature from various government resources, as well as peer-reviewed articles, guided by key clauses of the codes. Additionally, seven key informants were interviewed to assess the relevance and applicability of the code in the Indian healthcare sector using a semi-structured questionnaire. Key Findings: The implementation and dissemination of the code were close to non-existent, and no policies and programs could be identified that were potentially guided by the WHO code. A gap of awareness regarding the code's content and purpose exists. The participants attributed the push factors in India to be the major drivers of migration, rather than the pull factors. Relevance to Seminar Themes: This study aligns with the two major seminar themes of Health Systems and Policy Responses. It examines how an international soft law translates into practice, especially in a resource-limited country like India. By analysing India's steps towards the WHO code, the study sheds light on systemic challenges in managing nurse migration.

10635: Residential Conditions and Life Satisfaction Among Elderly Urban Dwellers in India: Insights from the LASI Survey (2017-18)

Sumit Narayan Dwivedi

India has been experiencing a rapid demographic and urban transformation, with its elderly population projected to more than double in the coming decades and nearly half the population expected to live in urban areas by mid-century. These shifts pose significant challenges to the well-being of older adults, particularly in terms of housing quality, neighborhood safety, and access to basic amenities. This study examines the relationship between residential conditions and life satisfaction among elderly urban dwellers in India, utilizing data from the Longitudinal Ageing Study in India (LASI), Wave 1 (2017-18). The results highlight strong associations between residential conditions and life satisfaction. Elderly individuals with access to electricity, clean cooking fuel, and improved toilet facilities reported significantly higher life satisfaction. Those owning both a home and other properties had 1.64 times higher odds of high life satisfaction compared to non-owners. Perceived economic status and neighborhood safety were also significant predictors; individuals who felt economically better off and safe in their surroundings reported greater well-being. Propensity score matching confirmed that older adults residing in houses with defects independently experienced a 16% reduction in life

satisfaction. The findings of this study underscore the need for urban policy and planning to prioritize age-friendly, safe, and well-equipped living environments. Policies should improve access to essential services, incentivize affordable housing upgrades, enhance neighborhood safety, and integrate the needs of older adults into urban development.

10476: Family Structural changes in low fertility states in India

Preetha V Mohan & Rajesh J Nair

Shift from joint-family system to nuclear family system has affected the structure of the family system in India. Socio-cultural and educational development was the basis of fertility decline and rapid spread of nuclear family system in Kerala. Hence, the objective of present study is to assess the structural changes in the family in India and selected low fertility states. National Family Health Survey data (1992-92 to 2019-21) has been used for the analysis. Along with NFHS, other available secondary sources of data like National Sample Survey (various rounds) and Sample Registration System were also incorporated for the study. A decline in younger age population is observed across both urban and rural parts of the country, though it differs in its pace. Proportion of children aged less than 10 years has declined more or less similar pattern in the country. Over the three decades of NFHS, Kerala experienced sharp decline in its child and younger age population. Share of higher age population has increased in the state. The rural-urban difference in the higher concentration of elderly people is more visible in southern states and Maharashtra where decline in fertility started earlier than other states like Himachal Pradesh, Punjab and West Bengal. During the last three decades, due to decline in fertility, the country has experienced reduction in the child dependency, at the same time that of elderly has increased slightly. Conclusion: Increased student migration and higher aspiration for the students for permanent residence in the foreign country devastated the Indian families. Pre-marital classes may be provided strictly to both the partners to ensure harmony in marital life. Respect to each partner is essential in reducing the rate of divorces. Inclusion of elderly people in the welfare and community-based programmes is also necessary.

10481: Socio-Demographic and Geographic Determinants of Risk Perception Among Coastal Communities of Ernakulam District in Kerala, India

Anupama Chandran & Archana Kujur

Hazards pose different levels of risk to communities. There are many interrelated factors that determine how an individual perceives risk, making it complex and contextual. The aim of this study is to examine risk perception in relation to socio-demographic and geographic determinants. This study was conducted among coastal communities in the Ernakulam district of Kerala, India and primary data was collected using a structured questionnaire. Univariate non-parametric statistical analysis was done, and the results revealed that risk perception is more closely connected to the living environment, including housing and geographical location. The other socio-demographic factors, such as age, sex, education, occupation, and income, did not significantly influence the risk perception among the coastal communities of Ernakulam. The findings emphasise the importance of considering socio-demographic/geographical contexts when implementing risk management policies for coastal communities at the local level.

10677: Understanding Successful Ageing in the Indian Context: A Critical Review towards a Multidimensional and Culturally Grounded Framework

Sarika Rai & Jitender Prasad

India is undergoing a demographic transition, marked by a rapidly growing ageing population, which is projected to constitute nearly one-fifth of the nation's total by 2050. Against this backdrop, understanding the concept of successful ageing has become increasingly vital for shaping policy for elderly. This paper presents a critical review of literature on successful ageing, with particular emphasis on conceptualization, correlates, and cultural relevance within the Indian context. Drawing 15 peer-reviewed studies published between 1994-2023, this review examines various aspects of successful ageing, encompassing physical and cognitive health, social engagement, economic independence, and subjective well-being. The findings reveal that while biomedical models, dominate global discourse, Indian perspectives emphasize familial ties, interdependence, and socio-cultural belonging as core determinants of ageing well. Gender, rural-urban residence, and socioeconomic disparities emerge as significant structural determinants shaping older adults' opportunities for successful ageing. The review also identifies substantial research gaps concerning nutrition, technological engagement, policy interventions, and the role of emotional well-being, particularly happiness, in influencing ageing trajectories. Furthermore, the study highlights the need to re-conceptualize successful ageing beyond Western frameworks by integrating India's cultural heterogeneity and social realities. Overall, this paper argues for a multidimensional and contextually grounded understanding of successful ageing in India, one that embraces physical vitality, mental resilience, social connectedness, and economic security as interconnected pillars of later-life well-being. Such an approach can inform inclusive gerontological research and evidence-based policymaking aimed at fostering dignity, independence, and quality of life among India's older population.

10721: Social Protection and Elderly Care: A Conceptual Review of Execution Gaps of Policies, Programmes.

Pankaj Kamal Shankar Kumbhar

This paper reframes policies, schemes and programmers for ageing as a social and economic protection phenomenon in rural India, arguing that care, accessibility of benefits, hurdles, vulnerability and social protection must be understood together rather than in isolation. It is expected by UNDESA (United Nations Department of Economic and Social Affairs) in 2008, that the Indian population of elderly 60 and above will grow up to 11.1 % in 2025. In today's context changing patterns of social systems such as shifting from Joint family to Nuclear family leading elderly more vulnerable. Therefore, the comprehensive social protection of elderly has become an issue of great concern. The present conceptual review paper produces secondary existing literature related to the theme to examine how social protection mechanisms works for integrated development of elderly with well-being and care through policies and programmes in the Indian scenario and find out the essential implementation loopholes of welfare programmes for care and protection of older persons. Despite policy advances and expanded coverage of old-age pensions over the past two decades, rural older populations continue to face multidimensional insecurity which includes limited coverage, low benefit adequacy, administrative exclusion, gendered disparities, and barriers to access. This conceptual review proposes an integrated conceptual framework that is aligned with policies and programmes design elements to expected outcomes to monitor progress and effective implementation strategies at ground level. The present paper adopts a mixed-methods secondary source of

approach. The existing reviews and synthesis of secondary sources of information will be assessed. Source like official government documents notified by Ministry of Rural Development, Ministry of Social Justice and Empowerment and portal of National Social Assistance Programme.

10692: A Case Study of Educational Aspirations of Scheduled Tribe Students of Eklavya Model Residential School Kalsi, Uttarakhand

Shivani Chauhan

There is no precise sociological definition of the term 'tribe' in which all the scheduled tribes have been categorized. STs in some regions of the country perceive themselves as aboriginals, Adivasis, Vanvasi, Raniparaj, etc. (Sujatha et al., 2020). Article 275(1) of the Indian Constitution provides for grants-in-aid from the Consolidated Fund of India to states to promote the welfare of Scheduled Tribes (STs). To further this goal, the Government of India launched the Eklavya Model Residential School (EMRS) scheme in 1997-98, aimed at providing quality education to ST children in remote areas. This study, based on seven focus-group discussions and five in-depth interviews, investigates the educational and residential experiences of tribal boys and girls at EMRS Kalsi. It also examines how gender influences career choices among these students and explores the reasons behind student dropouts. The qualitative research methodology is well-suited for understanding the nuanced gendered educational experiences of tribal students within the socio-cultural context of EMRS Kalsi, located in Dehradun district, Uttarakhand. This study also analyses secondary data like U-DISE+ Reports, NEP 2020, and Census 2011 data to understand the present educational status of STs in India. Also, by linking the gendered experience of tribal students to the broader sociological concepts of Virginius Xaxa and Jean Dreze, this research paper offers to highlight the concern among the EMRS students of how they would be perceived outside the borders of the tribal school and how the parental and students' educational aspirations are driven by the social context. This research paper also emphasizes that advancements in education can promote inclusive development by addressing the socio-cultural needs of marginalized communities.

Keywords: Scheduled tribes, Gender, Education, Residential Schools, EMRS

10726: Marriage Forms and Dowry Scenario in Northern Indian States: Evidence from IHDS, 2011-12

Shivangi Gupta

Marriage is not only the physical bond between two people, but it is also considered the divine bond between two families (of bride and groom), sanctioned and permitted by various social institutions of society and by society itself. There have been various marital norms, as well as the acceptability of different forms of marriage, along with varying wedding gifts, including substantial cash amounts (especially in northern Indian society). This phenomenon holds significant scholarly relevance, and consequently, this study examines the acceptability of various forms of marriage and the prevalence of different types of wedding gifts across several independent variables, including place of residence, educational attainment, caste, religious affiliation, income sources, and membership status in the northern plain states of the country by using IHDS-II data (2011-12) through cross-tabulation and descriptive statistics methods. Lastly, this study concluded that widow remarriage is quite acceptable in the society of the study area (as people agree with widow remarriage), while in the same states, inter-caste marriage is not acceptable to the people. Along with that, the wedding gift is also very much

prevalent in the study area, as most people accept that giving or taking precious and costly wedding gifts, such as gold, silver, land pieces, flats, and cash amounts, is very usual in marriages.

Keywords- Marriages' forms, wedding gifts, dowry, independent variables, IHDS data.

China's Demographic Realities and Economic Slowdown: Opportunities and Challenges for India

Rakesh Arya

China, once greeted as the engine of global economic growth, is now dealing with profound demographic shifts and a slowing economy. The nation's declining fertility rates, shrinking workforce, and rapidly aging population pose significant long-term challenges to its economic vitality. Concurrently, structural inefficiencies, real estate crises, and dwindling export growth have exacerbated the slowdown. These realities present a dual-edged scenario for India, offering both opportunities and challenges. On the one hand, China's economic deceleration opens avenues for India to position itself as an alternative manufacturing hub and attract foreign investments seeking to diversify from China. India's demographic advantage, with a burgeoning young workforce, aligns with this potential. Enhanced global interest in India's market, driven by geopolitical shifts, such as the US-China trade tensions, further strengthens its prospects. However, India faces its own set of challenges, including infrastructure gaps, skill deficits, and bureaucratic inefficiencies, which must be addressed to capitalize on these opportunities effectively. Additionally, the global economic slowdown, coupled with China's influence in regional trade networks, could impact India's trade aspirations and growth trajectory.

10597: Emergence of Low and Lowest-Low Fertility Preferences of India

Sovan Majumder & R. Nagarajan

Fertility decline is a defining demographic trend of the 21st century, shaping economic and social structures worldwide. India, traditionally characterised by high fertility rates, is now experiencing a dramatic shift, with several states recording below-replacement fertility levels. India is examining the contradictions within its demographic landscape. While some states have successfully transitioned to lower fertility due to urbanisation, increased female education, and access to contraception, others still exhibit high fertility rates, driven by socio-cultural norms, economic constraints, and limited healthcare access. This paradox raises crucial questions about India's future demographic and economic prospects, particularly regarding labour force participation, ageing populations, and policy responses. This study examines the intersectional variations in Total Fertility Rate (TFR) across different socio-economic and demographic groups in India, utilizing data from NFHS-1 to NFHS-5. The analysis categorizes fertility preferences based on rural-urban residence, caste (SC/ST and Others), economic status (Poor/Rich), educational levels (Educated/Uneducated), and gender preference (Son preference/Daughter preference). The findings reveal significant disparities in fertility rates, with higher TFR observed among poorer, uneducated, and rural populations, particularly among SC/ST groups (Intersectional Group). Additionally, gender preference plays a crucial role, with son preference being more dominant in higher TFR groups, whereas those showing daughter preference exhibit relatively lower fertility rates. The study highlights the ongoing influence of socio-cultural factors on reproductive behaviour in India and emphasizes the need for targeted policy interventions to address fertility inequalities. Also, my study shows that there is a

significant regional difference in fertility preferences between the north and the south intersectional group.

10457: Gender Gap in Life Expectancy in Kerala: A Disaggregated Analysis by Rural and Urban Regions

Abdul Fathah & TR Dilip

Background: Life expectancy is a key public health metric, often influenced by demographic, geographic, and socio-economic factors. Kerala, known for its high health indicators, still faces unexplored disparities in longevity across gender and residence. **Objective:** To assess rural-urban and gender-based disparities in life expectancy in Kerala from 2018 to 2022 using official mortality data. **Methods:** The study utilized death registration datasets from five consecutive years, cleaned and processed. Mean age at death was calculated as a proxy for life expectancy, with subgroup analysis by gender and residence. Statistical testing (t-test and ANOVA) was conducted to evaluate significance of observed disparities. **Results:** Urban residents consistently exhibited higher mean age at death compared to rural residents, and females outlived males by an average of 3.5 years. All subgroup differences were statistically significant ($p < 0.001$). A decline in 2020 reflected COVID-19 impact, followed by recovery. **Conclusion:** Despite Kerala's health achievements, significant disparities in life expectancy persist across gender and geography. Data-driven insights from this study can guide targeted, equity-focused public health interventions. **Relevance:** This study highlights the persistent gender and rural-urban inequalities in longevity within a high-performing state like Kerala, offering evidence crucial for regional health planning and policy targeting equitable life expectancy gains.

Keywords: Life Expectancy, Rural-Urban Disparity, Gender Gap, Kerala, Statistics

10468: Development of an Indicator to Measure Fertility Control using the Power Function Distribution: Validation and Testing of Temporal and Spatial Pattern in India

Hricha Rai & Brijesh P. Singh

To measure the transition of fertility in a population, demographers have often faced challenges. Therefore, it is essential to develop fertility control measures that are easily obtainable, responsive to changes in fertility, and either minimally affected by data inaccuracies or capable of being adjusted to account for such errors. This paper involves the development and testing of a new indicator to measure the intensity of fertility control, using a power function distribution. The indicator uses data on the open birth interval (OBI) and the most recent closed birth interval (MRCBI) of a cohort of females. The central advantage of the proposed measure does not require information on a female's birth history. The new measure proposed is tested for all-India data. The intensity of fertility control obtained from the proposed indicator is also compared with the other available measures of fertility to check the applicability of the indicator. The proposed index competently explains the fertility control situation across different groups and regions without requiring data on birth counts, both in cross-sectional and longitudinal analyses, suggesting its utility in reproductive epidemiology and public health planning. Our study shows a clear advantage of studying power function-based approaches when the birth count data through TFR-based approaches heavily depend on population surveys.

10492: Exploring State Disparities in Consanguineous Marriage and Its Determinants in Southern India

Saravanan. R

This study aims to explore the prevalence of consanguineous marriage in the major states of south India and it also tries to examine the determinants of consanguineous marriage in southern India. Data for 76,018 ever-married women who reside in Andhra Pradesh (9,183), Karnataka (23,876), Tamil Nadu (20,243) and Telangana (22,716) were analyzed from the National Family Health Survey- V conducted in 2019-21. The proportion of prevalence of consanguineous marriage was almost similar in all the four major southern states, however Tamil Nadu stood at top with 30.1 percent, followed by Karnataka (28.2percent), Andhra Pradesh (27.6percent), and Telangana with 25.1percent. This proportion for each of the four states was almost three-fold higher than national prevalence rate. The prevalence of mother's side consanguineous marriage was higher in all the major southern states except in Telangana than the father's side consanguineous marriage. The prevalence of consanguineous marriage was more among young women, rural women, less educated women, ST women, and women living in richest wealth quintile than their respective counterparts.

10572: Examining Sex Preferences and Its Impact on Contraceptive Use among Tribal Women in India: Evidences from NFHS-5

Anubhav Verma & Harihar Sahoo

Tribal communities were traditionally seen as egalitarian, with minimal gender bias. However, under the influence of mainstream society, son preferences have become evident at birth. While contraceptive use among tribal women has been widely studied, scarce literature exists on how the sex composition of living children affects contraceptive use. This study, using NFHS data, explores the effect across the country. The study found tribal communities have the lowest contraceptive use, with female sterilization being the most common method. The northeast showed the lowest contraceptive use. Contraceptive use positively correlated with exposure to family planning messages, the number of living sons and living children. The wealth quintile, age at marriage, household size, and ideal number of children showed negative correlations with contraceptive use. Women with only daughters consistently had lower contraceptive use, especially in the northern and central regions, indicating son preferences and regional disparities in contraceptive behaviour.

10694: Governance Strategies and Policy Innovations for Health Transitions in Growing Populations

P. Shailaja & B. Rameshwaramma

The universal landscape of population changing aspects is undergoing rapid fluctuations, especially in low and middle-income nations that are observing significant population growth. These demographic changes pose both opportunities and challenges for health systems that are already under rinsing. This research paper observes governance policies and plan innovations that have arisen to address health transitions changes in disease patterns, healthcare necessities, and organization demands exclusive growing populations. Manipulating proportional case studies and universal policy analyses, the study highlights adaptive governance models, cross-sectoral coordination mechanisms, and innovative health policies that strengthen system resilience and justice. - Vital parts of attention include the augmentation of key healthcare, the integration of digital health technologies, and community-based involvements that correspond

with demographic realities. Moreover, the paper highlights instructions learned from realms that have effectively navigated similar transitions, providing appreciated understandings for officials and participants aiming to secure justifiable and comprehensive wellbeing outcomes. In this method, it subsidizes to a wider empathetic of how governance and policy innovation can support health schemes in familiarizing to the challenges posed by demographic change. Objectives of the study: To analyse the key health transition trends in aging population in urban areas; Evaluating the existing governance frameworks and policies; To explore innovative policies and governance mechanisms in various departments; To access the causes and challenges in implementing the policies; To find out resilient policy strategies for future health system strengthening in urban slums. Research Methodology: Present study will be taken up in the government hospitals, existing in Hyderabad.

10460: Men on the Move, Sons in Demand: Examining the Link Between Male Migration and Son Preference

Vikesh Kumar & Soumen Barik

Despite economic and social progress, son preference in India remains strong, influencing fertility choices and leading to distorted sex ratios. While male labour migration constitutes 13% of internal migration and is primarily economically driven, its influence on son preference is underexplored. This study examines whether men's migration increases or reduces son preference in societies where sons are valued both culturally and economically. This study utilized a nationally representative sample of 62, 924 married, working men aged 15-54 yrs from NFHS-5 (2019-21), where descriptive statistics were used to determine the level of migration by their background characteristics, and further, we applied the binary logistic regression to examine the association between the migration status of men and son preference among them. Among currently working and married men (aged 15-54 years), 8.4% were temporary migrants, 5.8% were semi-permanent migrants, while the majority of men (approximately 86%) were non-migrants. After adjusting for socio-economic status, the results of the logistic regression indicate that temporary migrants had 1.16 times higher odds and semi-permanent migrants had 1.27 times higher odds of experiencing son preference compared to non-migrants. This study suggests that labour migration of men was more gender biased and favours the son over the daughter, and counters the assumption that mobility promotes gender equity. Policies must address the cultural and emotional insecurities driving this bias through gender-transformative messaging, social protection to reduce son-dependent old-age security, and support for women's agency in both origin and destination communities.

Keywords: Male labour migration, son preference, NFHS-5, gender bias, India.

10526: The Philanthropic Ecosystem of the Keralite Diaspora: A Study of Collection, Distribution, and Networks

Afsal K & Reshmi R. S.

This paper examines the nature and processes of diaspora philanthropy among the Keralite migrant community, a group predominantly based in the Gulf countries. While remittances from this diaspora are well-studied, the organized, collective philanthropic endeavors that supplement development remain underexplored. Based on a mixed-methods study conducted in Malappuram, Kerala, this paper analyzes the intricate mechanisms through which diaspora philanthropy is collected, channeled, and distributed. Findings indicate that giving is overwhelmingly facilitated through formal philanthropic organizations rather than direct

individual transfers. These organizations, focused primarily on health, education, and social welfare, employ a diverse range of resource collection strategies, including membership campaigns, chapter committee collections in host countries, individual sponsorships, and special issue-based drives. The distribution of aid is systematically managed through locality-based, targeted-group, and issue-responsive approaches. The study reveals a highly structured and networked philanthropic ecosystem that operates in parallel to state development efforts, often filling crucial gaps in public service delivery. This paper contributes to the understanding of transnationalism by detailing the procedural aspects of collective remittances and their role in the socio-economic fabric of the home state.

Poster Session – 2

Health and Health Care Utilization

10525: Anthropometric Failure among Children Aged 6-23 Months in India: A Study on Gender Differentials and Dietary Diversity across Geographical Regions

Ranjan Singha, Paramita Majumdar & Dhananjay W. Bansod

Introduction: Child Undernutrition is a serious public health concern in developing countries worldwide. In developing countries like India, girls are widely perceived to be in a disadvantaged position due to the persistence of adverse gender norms. Although India is largely patriarchal and girls are still undervalued, the nutrition scenario is complex. India has a high burden of child undernutrition, which demands extensive and in-depth research. **Objective:** The aim of this study is to assess gender-wise differentials in the anthropometric status of children aged 6-23 months across regions of India and examine the determinants. **Methodology:** The Kids Recode' file from the National Family Health Survey (NFHS-5, 2019-21) has been used, and the effective sample size was 57519. The outcome variable was anthropometric failure' based on the Composite Index of Anthropometric Failure (CIAF), where main explanatory variable was gender. Bivariate analysis and multivariate logistic regression have been employed. **Findings:** Findings reveal a significant gender differential in anthropometric failure among children, with male children (52%) exhibiting a higher prevalence of undernutrition compared to their female (47%) counterparts. This trend is consistent across various geographical regions of India. The regions with the highest gender gap are the Northern and Central regions, and the least gender gap is observed in the Eastern Region. Dietary diversity emerged as a crucial determinant of anthropometric failure. After controlling for several factors, gender remains a significant predictor of anthropometric failure. Other significant predictors of anthropometric failure include child characteristics like age, birth order, and birth weight. Maternal characteristics like mother's age, education, BMI are also associated with anthropometric status. Overall, these findings emphasize the need to address the gender gap and dietary diversity to combat child undernutrition.

10536: Assessing the Burden of Hypertension and Diabetes among Menopausal Women: Evidence from the National Family Health Survey (NFHS-5) in India

Nutan Kumari & Jyoti S. Hallad

Background: Age of menopause is a crucial biomarker of not only the loss of fertility but also an increased risk for various mid-life diseases, while hypertension and diabetes are the most common diseases. The present study examines the assessment of the burden of hypertension and diabetes among menopausal women. **Data:** This study utilized secondary data from the fifth

round of the National Family Health Survey- V (NFHS-5), conducted during 2019-2021 in India. The study sample was restricted to those women in groups 30-49 years. A descriptive statistics and regression analysis used to examine the association between the hypertension and diabetes with background characteristics of menopausal women. Result: The present study reveals that 34% of women experience menopause in the age group 40-49 years. The prevalence of hypertension (13.5%), diabetes (6.7%) and both diseases (17.2%) is high among those women who experience menopause. Although hypertension, diabetes, and both diseases are high, women with higher education, belong to other caste groups, richest wealth, those living in urban areas. The prevalence of hypertension, diabetes and both diseases varies across the states of India and is highest in Punjab (Hypertension), Kerala (diabetes), and Goa (both hypertension and diabetes). Conclusion: The study found that the prevalence of hypertension and diabetes is higher among women who have gone through menopause. Therefore, it is essential to implement programs at the macro level that focus on providing treatment and raising awareness for women in menopause.

10768: Association between Hysterectomy and Diabetes among the Post Menopausal Women of India

Poulami Sarkar

Hysterectomy, while treating gynecologic morbidities, induces surgical menopause. This hormonal disruption is linked to long-term risks, including Type 2 Diabetes (T2D). India faces a severe T2D burden, yet research linking it to hysterectomy is scarce and rarely focuses on post-menopausal women. This is critical for India as rates of early-age hysterectomy and high underlying genetic risk for diabetes are there. The objective of the study is to examine the association between hysterectomy and diabetes among post-menopausal women in India. The study used LASI Wave 1 (2017-18) data for post-menopausal women aged 49 years and above. After excluding men, and below 49 and the missing cases for diabetes and hysterectomy, the final sample comprised 25626 women. Diabetes was defined using a composite measure of self-reported and biomarker data ($HbA1c \geq 6.5\%$), and hysterectomy was the primary predictor. Prevalence differences were assessed using bivariate analysis, followed by multivariate logistic regression. To minimize selection bias, both entropy balancing with weighted logistic regression and propensity score matching (PSM) were employed to generate adjusted estimates of the association between hysterectomy and diabetes in India. Among all background characteristics, women who had undergone a hysterectomy showed consistently higher prevalence of diabetes than those who had not. In the 60-69 age group, diabetes prevalence was 32.33% vs 22.46% in the control group. Entropy-weighted logistic regression showed 19% higher odds of diabetes among hysterectomized women (OR: 1.192, 95% CI: 1.080-1.317). In unweighted models, the association remained significant after adjustments -unadjusted (OR: 1.561, 95% CI: 1.428-1.706) adjusted for socioeconomic factors (OR: 1.267, 95% CI: 1.150-1.396), and with BMI OR: 1.189, 95% CI: 1.077-1.312). Propensity score matching confirmed a higher diabetes likelihood among hysterectomized women (ATE = 0.035).

10735: Menstrual Care and Support: Role of Knowledge, Attitudes and Agency of Unmarried Adolescent Boys and Young Men in Slum Settings, Mumbai, India

Paramita Majumdar, Shireen J Jejeebhoy, Aparajita Chattopadhyay & Debashree Sinha

Menstrual health and rights are increasingly recognised as not just a woman's issue. However, there is limited research, including in India, on boys' and men's roles in enhancing menstrual health management, especially in resource-poor settings. Our study aims to explore the

knowledge and attitudes held by unmarried boys and young men and the support they provide to their mothers and sisters in a disadvantaged urban setting. Data come from a larger study undertaken in the slums of Mumbai that aimed to assess menstrual health management. This particular study used data from the survey of boys and young men aged 15-24 years to understand the factors associated with the support that boys and men extend to their mothers and sisters during periods. Findings suggest that knowledge about menstruation is poor and attitudes remain largely traditional. Those with a better understanding of menstruation and those who do not perceive menstruation to be impure were more likely than others to support mothers and sisters. These findings underscore the need for comprehensive sexuality education to include boys and young men and apprise them about menstruation-related matters and build progressive attitudes to encourage them in supporting women and girls to manage menstruation effectively.

10533: Prevalence and Predictors of Cardiovascular diseases among Older Adults in Kerala

Arun Kumar V S & Anjana A

This research investigates the occurrence of cardiovascular diseases (CVDs) and the connected risk factors among the elderly population in Kerala, India, utilizing data from the Longitudinal Aging Study in India. As life expectancy has risen, non-communicable diseases (NCDs) have emerged as a growing public health issue in the country. Rapid urbanization and lifestyle changes have triggered an epidemiological health transition, leading to overall economic growth. However, this transition has also brought certain associated risk factors. The research reveals a significant increase in self-reported CVD prevalence with age, emphasizing the cumulative impact of risk factors throughout the lifespan. For the current study, data was obtained from the Longitudinal Aging Study in India, which is a national survey aimed at scientifically investigating the health, economic, and social determinants and consequences of population ageing in India. Logistic regression was carried out between CVD and its associated risk factors. High cholesterol and diabetes emerge as prominent risk factors, corroborating existing evidence of their substantial contribution to CVD morbidity and mortality. Physical inactivity is identified as a noteworthy risk factor, emphasizing the importance of promoting regular physical activity among older adults. The study also underscores the significant role of family history in CVD, urging attention to genetic predispositions in preventive strategies. Logistic regression analyses provide nuanced insights into the multivariate relationships between various demographic and health-related factors. In summary, the study provided a thorough evaluation of the prevalence of cardiovascular disease and the related risk factors within the elderly population in Kerala. It is imperative to implement targeted strategies aimed at reducing CVD risk among the elderly, with a specific focus on promoting physical activities and early detection of CVD based on family History.

10647: Impact of WASH and Other Common Infrastructure and Health Infrastructure on Community Engagement

Tijo George, Rashmi Rashmi, TR Dilip, TV Sekher, Mala Ramanathan, Jissa VT, Aparna Sasi, Shalini Stenson & Rakhal Gaitonde

Introduction: Promoting older adults' well-being requires strengthening individual resources and community-level environments that enable healthy ageing. Common infrastructure related to water, sanitation and hygiene (WASH), community amenities, and local health infrastructure form components of a community's capacity to support social participation. The presence of

functional health infrastructure can enhance community health security and lower structural barriers to participation. However, the combined role of WASH and health infrastructure in shaping community-level social participation among midlife and older populations remains underexplored in the Indian context. Objective: To examine how the availability of infrastructures (common and health) at the community level influences collective social engagement among individuals aged 45 years and above. Methodology: The study employs a community-level cross-sectional design to investigate the relationships between rural infrastructure and social activity among middle-aged and older adults. The outcome variable was the mean community-level social activity score, while the main explanatory variables were indices for common infrastructure and health infrastructure. Using dominant caste within a community as a stratifier, we could undertake analysis using Ordinary Least Squares Regression. Findings: Among the Other Backward Class (OBC)-dominated community, both common infrastructure ($\hat{I}^2 = 0.038$, $p = 0.055$) and health infrastructure ($\hat{I}^2 = 0.044$, $p < 0.001$) were positively related to social activity. Among Scheduled Tribe (ST)-dominated communities, common infrastructure had a strong positive association ($\hat{I}^2 = 0.182$, $p < 0.001$). Conclusion: Social activities within communities are facilitated by the presence of common infrastructure in SC and ST communities, but not within others and OBC communities, where the availability of health infrastructure facilitates social activities within communities.

10681: Synthesizing Evidence: A Meta-Analytic Assessment of National Micronutrient Deficiencies among Children in India

Ashapura Goswami, Sarang Pradipkumar Pedgaonkar & Ashish Dwivedi

Introduction: Micronutrient deficiencies remain a major public health issue among Indian children under five, contributing to stunting, cognitive impairment, and infection risk. India's cereal-based, low-diversity diets exacerbate this problem, underscoring the need for updated national evidence to guide fortification and supplementation efforts. Objective: To estimate the pooled prevalence of six key micronutrient deficiencies, iron, vitamin A, zinc, vitamin D, vitamin B, and folic acid, among Indian children aged 0-59 months, and assess trends, heterogeneity, and result robustness. Methodology: - Following PRISMA 2021 guidelines, studies from 2015-2024 were reviewed from PubMed. Using R software and a random-effects model, pooled prevalence, heterogeneity (I^2), and publication bias were analyzed, with sensitivity and meta-regression tests ensuring reliability. Critical Findings: Thirty-nine studies were included. The pooled prevalence of deficiencies was 47.6% (95% CI: 37.1-58.3; $I^2 = 98.4\%$). Iron (63.7%) and vitamin D (55.5%) were most common, while vitamin A (23.9%) was least. No significant publication bias was detected ($p = 0.97$). Conclusion: Nearly half of Indian preschoolers have at least one micronutrient deficiency, particularly iron and vitamin D. Strengthened dietary diversification, food fortification, and supplementation programs are essential to improve child nutrition outcomes in India.

10716: Inequalities in Health Care Utilization among Elderly with Poor Self-Rated Health: A comparison study between Kerala and Tamil Nadu

Neetumol S.S. & Anil Chandran S.

India's population is changing significantly. In recent decades, the number of older adults in India has grown substantially more than that of the 15-59 age group. To ensure equity, efficacy, and sustainability in the delivery of health care, it is crucial to comprehend consumption patterns, potential access hurdles, and factors that either assist or impede the use of health services. The purpose of this study is to compare important determinants, and reveal underlying

disparities in the use of health care among senior citizens in Kerala and Tamil Nadu who have low self-rated health. This study used data from the first wave of the Longitudinal Aging Study in India (LASI, 2017-19). The final sample for the current study included 1,661 (880 from Kerala and 781 from Tamil Nadu) older adults aged 60 years and above who reported their current health status as Fair or poor. The percentage of older women in Tamil Nadu and Kerala who report being in bad health is significantly higher than the percentage of men. Kerala has a significantly greater overall percentage of older people with poor self-rated health (73%) than Tamil Nadu (51%). A substantially higher share in Kerala used some form of care in the past year (76%) compared to Tamil Nadu (60%). Both states have fairly high OPD (out-patient) service utilization rates, with Tamil Nadu having a slightly higher rate (85%) compared to Kerala (83%). The extremely low $I\hat{A}^2$ values show that the socioeconomic profiles of older people with poor SRH who have utilize IPD or OPD in Tamil Nadu and Kerala differ significantly across the majority of variables.

10720: Mistreatment and Mental Health Challenges Among Older Women in India

Subrat Panda & Sameer Kumar Jena

This study investigates the relationship between elder abuse and mental health among older women aged 60 and above in India, utilizing data from the Longitudinal Ageing Study in India (LASI) Wave - 1. Elder abuse, a recognized global issue, affects both genders, with women demonstrating heightened vulnerability due to factors such as financial dependency, physical or cognitive impairment, and social - isolation. In India, around 5% of elderly adults report experiencing ill-treatment, with higher prevalence observed in states like Bihar, Karnataka, and West Bengal. The LASI survey employed a nationally - representative sample using a multistage stratified sampling method, ultimately including 16,366 older women. Mental health outcomes, specifically depressive symptoms measured through the CES-D scale, serve as the main outcome variable for this analysis, with ill-treatment experienced in the past year considered the key predictor, along with demographic and socioeconomic covariates including age, education, caste, and impairment status. Results reveal significant disparities: rural residency, lower education, poorer economic status, marginalized social groups, and especially those with physical or mental impairments are associated with both higher rates of abuse and depression. Notably, the prevalence of depressive symptoms is greater among those who experienced ill-treatment (AOR: 3.27; CI: 2.34-4.57) and among those with disabilities or those who live alone. State wise analysis highlights marked geographical variation, with depressive symptoms most prevalent in Arunachal Pradesh, Jammu & Kashmir, and Andaman & Nicobar Islands. Logistic regression further demonstrates a robust association between abuse and depression after controlling for confounders. These findings underscore the urgent need for targeted interventions to address and prevent elder abuse, and to improve mental health outcomes for aging women.

10772: Does Caring More Bring Greater Fulfilment? Examining the Intensity of Grandchild Care and Life Satisfaction Among Indian Older Adults

Anukul Barman

Introduction: Grandparental caregiving forms an integral part of intergenerational family support systems in India. While prior research has largely examined whether older adults provide care or not, limited attention has been paid to the intensity of such caregiving and its implications for subjective well-being. This study addresses this gap by exploring the association between the intensity of grandchild caregiving and life satisfaction among older

adults in India. Methods: Data were obtained from Wave 1 of the Longitudinal Ageing Study in India (LASI, 2017-2018). The analytical sample comprised 25, 588 older adults aged 60-80 years. Order logistic regression models were employed to assess the association between grandchild care intensity and life satisfaction, controlling for relevant sociodemographic and health-related variables. Care intensity was categorized as no care, low care (<15 hours/week), and high care (>15 hours/week). Results: Findings revealed a positive relationship between caregiving intensity and life satisfaction. Compared to non-caregivers, older adults engaged in low-intensity caregiving reported significantly higher odds of life satisfaction (OR = 1.13, 95% CI = 1.04-1.22, $p = 0.002$). Likewise, high-intensity caregivers exhibited increased life satisfaction (OR = 1.18, 95% CI = 1.08 - 1.29, $p < 0.001$). Conclusion: This study demonstrates that participation in grandchild caregiving, regardless of intensity, is positively associated with life satisfaction among older adults in India. The findings highlight the psychosocial benefits of intergenerational engagement in later life and underscore the importance of considering caregiving intensity as a key determinant of well-being. Policy interventions promoting balanced caregiving roles and family support mechanisms may enhance the quality of life among ageing caregivers in India. Keywords: Grandchild care, Intensity, Older adult, Life satisfaction, LASI, India.

10490: Impact of Covid-19 pandemic on C-section among infected Indian women: evidence from qualitative analysis

Rushikesh Premdas Khadse & Dhananjay W. Bansod

The first case of novel coronavirus disease was identified in Wuhan city of China on December 2019. Covid-19 had a serious psychological impact on pregnant women, it reflects more than half of women reported higher anxiety than normal level. This study aims to explore the effect of Covid-19 on the health among women undergoing C-section delivery. Qualitative data was collected from women who were infected with Covid-19 and undergone C-section delivery in Amravati district of Maharashtra during March 2020 to February 2022. The selection criteria of women, the purposive sampling method was used to select the respondent. Three central themes psychological status of women, expenditure on C-section delivery during Covid-19 and health amenities emerged to explain the effect of Covid-19 on delivery among pregnant women. Pregnant women tested positive for Covid-19 preferred to opt C-section delivery and experienced anxiety, loneliness and depressed during the recovery period.

Keyword: Covid-19, C-section, Psychological Stress, Qualitative Research

10513: Socioeconomic Determinants of Social Support among Elderly Populations: A Comparative Analysis of Old Age Homes and Family Settings in Uttar Pradesh, India

Anil Kumar Pal

Background: The rapid demographic ageing of India's population underscores the critical need to understand the social support systems for the elderly, a key determinant of their well-being. The housing arrangement, whether in traditional family settings or institutional old age homes (OAHs), is posited to significantly influence the level of social support experienced, yet comparative studies in the Indian context are lacking. Objective: This study aimed to assess the prevalence and determinants of social support among elderly individuals residing in OAHs compared to those in family settings in Uttar Pradesh. Methods: A cross-sectional comparative study was conducted with 364 elderly participants (182 from OAHs and 182 from families). Data on socio-demographic characteristics, economic status, and social support levels

(categorised as low, medium, or high) were collected. Chi-square tests were used to examine associations, and ordered logistic regression was employed to identify factors independently associated with social support. Results: A significantly higher proportion of the elderly in family settings reported high social support (63.2%) compared to those in OAHs (31.9%) ($p < 0.001$). Bivariate analysis revealed significant associations between social support and sex, marital status, residence, occupation, asset ownership, and financial responsibility. After adjusting for confounders, ordinal logistic regression confirmed that residing in an OAH was independently associated with lower odds of higher social support (AOR=0.40, 95% CI: 0.22-0.74). Being widowed (AOR=1.92, 95% CI: 1.01-3.64) and being employed (self-employed: AOR=4.44; agricultural work: AOR=3.18; formal employment: AOR=4.60) were significant predictors of higher social support. Conclusion: Elderly individuals living in OAHs experience substantially lower social support than their family-dwelling counterparts. Interventions to enhance social support within institutional care are urgently needed.

10543: Wealth and Education Inequalities in Elderly Health: A Study on Multimorbidity in India

Saurabh Singh

Introduction: Multimorbidity is an escalating public health issue, particularly in low- and middle-income countries (LMICs). Socio-economic status (SES), including factors such as wealth and educational attainment, profoundly impacts health outcomes by determining access to healthcare resources and health literacy. Understanding the socio-economic disparities in multimorbidity is crucial, especially in developing countries like India, where economic and social stratification significantly influence health outcomes. Objective: This study aimed to evaluate the existence of wealth and educational inequalities in the prevalence of multimorbidity in the Indian population aged 45 and older. Methods: The data from the Longitudinal Aging Study in India (LASI) were used. Bivariate and logistic regression analysis was done to understand the prevalence and risk factors of multi-morbidity. Further, education and wealth-based inequalities in prevalence of multi-morbidity was assessed, using Wagstaff decomposition and the Concentration Index (CI). Results: Multi-morbidity was higher among individuals from richer wealth quintiles and with more years of education. The odds of experiencing multimorbidity was 1.79 (95%CI:1.70-1.89) and 2.39 times (95%CI:2.23-2.56) among higher among highest education and richest wealth quintile populations. Overweight (12.15%) and individuals with 10 years and above of education (5.37%) contribute considerably to the observed wealth-based inequalities. The richest quintile contributed 8.32% to the educational inequality in multimorbidity. Conclusion: This study reveals significant wealth and educational disparities in multi-morbidity prevalence among older adults in India. Since education is a modifiable causative risk factor for multimorbidity, additional emphasis on directly addressing income disparities, increasing healthcare access and health literacy in underprivileged populations can help advance equality in the prevalence of multimorbidity.

10744: Decomposing Inequalities in Child Undernutrition between Aspirational and Non-Aspirational Districts in India: Evidence from NFHS-5

Niranjan Rout & Binod Bihari Jena

India has made notable progress in improving child health indicators; however, undernutrition remains a major public health concern. According to NFHS-5 (2019-21), approximately 36% of children are stunted, 19% are wasted, and 32% are underweight. While there has been a marginal decline in these rates since NFHS-4 (2015-16), disparities remain stark particularly in

the aspirational districts, which were identified in 2018 for targeted government intervention due to poor socio-economic and health outcomes. In these districts, 41.3% of children are stunted, 21.2% are wasted, and 38% are underweight, all higher than the national averages. This study analyzes the factors contributing to the inequality in child undernutrition between aspirational and non-aspirational districts using data from NFHS-5. The specific objectives are to assess the extent of disparity and identify the key determinants responsible for the observed nutritional gap. Statistical techniques including such as Fairlie decomposition were applied to decompose the inequality in nutritional outcomes. The analysis focuses on three indicators: stunting, wasting, and underweight. Key explanatory variables include maternal education, household wealth, place of residence, caste, religion, maternal BMI, child's birth order, gender, and birth weight. - Findings reveal that undernutrition is significantly more prevalent in aspirational districts. The district of Pashchimi Singhbhum (Jharkhand) recorded the highest underweight prevalence at 63%, while Mamit (Mizoram) had the lowest. In 80 districts, the prevalence of underweight exceeds the national average. Decomposition results show that the inequality is largely driven by differences in wealth status and maternal education. These two factors account for a substantial portion of the explained gap in undernutrition between district categories, indicating that socio-economic disparities remain central to the persistence

10475: Factors influencing Healthy Ageing Among Older Indians: Findings from a National Survey

M.S. Ramesh & A.K. Ravisankar

Study examines the socio-cultural, demographic, and lifestyle factors associated with healthy ageing among 7, 578 elderly individuals aged 60 years and above in South India, using data from Longitudinal Ageing Study in India. A composite Healthy Ageing Index was constructed based on indicators of psychological, cognitive, functional, and social well-being. Findings reveal that 41.5% of elderly were living without a spouse, of whom 8% lived alone and 33.5% resided with children or others. Nearly two-thirds (66.8%) of elderly reported at least one chronic health condition, with higher prevalence observed in Kerala (78.5%), Puducherry (71.5%), and Lakshadweep (69.8%). Cognitive functioning was found to be good among 41.5% of the elderly, with Puducherry (59.1%) and Kerala (57%) showing highest proportions. About 40% experienced high levels of depressive symptoms, particularly Andaman (65.9%), Puducherry (46.8%), and Telangana (45.9%). Functional limitations were also common: 20.9% reported at least one limitation in Activities of Daily Living and 75.3% faced mobility restrictions. Furthermore, 17% had experienced some form of ill-treatment in the past. Proportion of elderly with good HAI was notably higher among those without impairments (39.8%), mobility restrictions (58.8%), chronic illness (57.6%), limitations in ADL (45.1%) or IADL (59.5%), and among those who were never mistreated (39.5%). Bivariate and multivariate regression analyses indicated that age, sex, education, media exposure, physical activity, and life satisfaction were significant predictors of healthy ageing. Younger, male, educated, and physically active elderly exhibited better health outcomes, while psychological mistreatment, mobility limitations, and impairments were negatively associated with healthy ageing. Study underscores need for targeted interventions promoting physical activity, psycho-social support, and inclusive health programs to enhance healthy ageing in Southern India.

10593: Temporal changes in Socio-Economic Inequality in Distress Financing for Caesarean Deliveries in India, 2015-21

Ankita Roy, Suraj Maiti, Rajeev Ranjan Singh & Sanjay K Mohanty

Introduction: The global rise in caesarean deliveries has heightened financial risks for poorer populations, particularly in low- and middle-income countries. In India, caesarean rates increased from 17.2% in 2015 to 21.5% in 2021. **Objective:** Using data from the last two rounds of National Family and Health Surveys (NFHS), this paper tests the hypothesis of whether the socio-economic (SES) inequality in distress financing for caesarean deliveries has increased in India. **Methodology:** We analysed 67, 497 caesarean births using data from NFHS-4 (2015-16) and NFHS-5 (2019-21). Births for which the OOP payment was met by selling properties/jewellery or borrowing from friends, relatives, and money lenders were labelled distress financing. The independent variables analysed were time, health insurance coverage, OOP payments, wealth status, place of delivery, birth order, mother's age, education, caste, and religion. We have used descriptive statistics, bivariate analyses, and decomposition analyses to understand the changes in socio-economic variations and inequality in distress financing. **Critical findings:** Distress financing declined nationally from 31.2% in 2015-16 to 23.1% in 2019-21. The decrease in distress financing has been observed across socio-economic groups in the country. The concentration index improved from -0.275 to -0.165, indicating reduced SES inequality in distress financing for caesarean delivery in India. Among all states, Bihar had the highest SES inequality in distress financing for caesarean delivery (CI: -0.327), while Himachal Pradesh had the lowest (CI: -0.045). However, state-level disparities persist. Decomposition analysis shows wealth and maternal education as key drivers of inequality. **Conclusions:** Rising caesarean rates and persistent interstate inequities suggest uneven policy effectiveness. Targeted reforms to reduce financial hardship and promote equitable access to maternal health services are needed.

10620: Association between Health Expenditure and Health Outcome in India: A Macro Level Analysis

Prasadya V S & R Nagarajan

This macro level study attempts to find out the association between health expenditure and health outcome in India in 2019 by taking data of 21 major states from different sources. We collected data related to health outcome variables such as infant mortality rate, life expectancy at birth and DALY from sample registration system and Global Burden of Disease data and data related to health expenditure from National Health Accounts and data regarding other confounding variables from Rural Health Statistics and Annual publication of Reserve Bank of India. To find out the association we used the method of pairwise correlation and scatter plot and result showed that there is significant correlation between per capita health expenditure with female life expectancy and infant mortality. To know the health and health expenditure status in India, boxplots are drawn and it revealed that both the infant mortality and female life expectancy are improving over time while health expenditure shows fluctuations even though in general it increases. By taking panel data from 2014 to 2019 from Economic and Political Weekly Research Foundation we fitted random effect model to study the impact of change in health expenditure on health outcome and found that change in per capita health expenditure has a significant impact on infant mortality rate and female life expectancy. The measure of Concentration Index investigates that health is improving in states having higher health expenditure as compared to states having lower health expenditure. The study suggests increase

in health expenditure together with its proper distribution have an impact in improving health in India.

Keywords: health expenditure, health outcome, infant mortality, female life expectancy, DALY

10621: Educational Gradient and Cognitive Health in India: Insights from the Longitudinal Ageing Study in India (LASI), 2017-18

Sadanand Karun

Background: There are studies linking body mass index, physical activity, and indoor air pollution with cognitive health, but how education determines the cognitive health remains less explored in low-and middle-income countries, specifically India. This study aimed to examine the association between educational gradient and cognitive health among individuals aged 45 years or above in India. **Methods:** The data on 57, 794 individuals aged 45 and above were extracted from the Longitudinal Ageing Study in India (LASI), Wave-I (2017-18). The mean cognitive health scores were estimated by educational gradient. A linear regression model was employed to assess the association between educational gradient and cognitive health. Finally, the Oaxaca-Blinder decomposition was performed to capture the factors creating the cognitive health gap among educationally advantaged and disadvantaged individuals. **Results:** Among people aged 45 or above, 50.7%, 17.7%, 21.1% and 10.5% had 0years, 1-5years, 6-10years, and above 10years of education, respectively, indicating an educational gradient. The mean cognitive health score varied between 20.5 among people with 0years of education and 31.6 among people with above 10 years of education. The fully adjusted regression model found that with reference to 0years of education the $\hat{\beta}$ co-efficient was 3.71 (SE: 0.116; p-value<0.001), 6.38 (SE: 0.126; p-value<0.001), and 8.21 (SE: 0.355; p-value<0.001) for 1-5 years, 6-10 years, and above 10 years of schooling, respectively; indicating a clear educational gradient in cognitive health. The Oaxaca-Blinder decomposition result showed that sex, place of residence, body mass index, age, and caste-group differences contribute most to the mean cognitive health score gap among educationally advantaged and disadvantaged groups. **Conclusion:** Tailored efforts are needed to encourage lifelong learning among middle-aged and older adults to promote cognitive health in India's rapidly ageing population.

10746: Gender and Age Differentials in Water-Borne Disease among Adults in India: Evidence from Longitudinal Ageing Study of India (LASI)

Rishabh Kumar & Pratyashee Ojah

In India, the incidence of acute and chronic diseases among the elderly population is approximately 25% and 45%, respectively. In general, men suffer more and die more and thus accumulate higher numbers of Disability Adjusted Life Years (DALYs). However, recent evidence indicates that such a trend is reversed in the older age groups, wherein females have higher rates for most conditions. Water-borne diseases remain a public health problem, mostly among older people, from a poor and unhealthy water supply. - Limited research has investigated the age- and sex-specific water-borne disease patterns in older adults. The current study proposes to determine the burden of the three leading water-borne diseases in India, jaundice/hepatitis, diarrhea/gastroenteritis, and typhoid, among the elderly Indian population and to find out their main socio-demographic and environmental predictors. - For the analysis, the Longitudinal Aging Study in India (LASI) Wave-I (2017-2018) data were used, consisting of a representative sample of 65, 384 people aged 45 and over. Univariate, bivariate, and binary logistic analyses were utilized to examine the data. Females showed lower odds of

jaundice/hepatitis compared to males across all age categories, but the differences were not statistically significant. In contrast, women had higher odds of diarrhea through all age groups, 45-59 years (AOR: 1.18, 99% CI: 1.09-1.29), 60-74 years (AOR: 1.24, 99% CI: 1.13-1.36), and 75 years and above (AOR: 1.30, 99% CI: 1.10-1.54). Likewise, women experienced higher odds of having typhoid in the 45-59 years (OR: 1.23, 99% CI: 1.12-1.35) and 60-74 years (OR: 1.27, 99% CI: 1.13-1.42) cohorts. Therefore, our study concludes that women had higher prevalence of water borne disease than men and found that the availability of proper sanitation facilities and safe drinking water played a crucial role in lessening the occurrence of all three diseases.

10602: Age at Childbearing Initiation: A Double-Edged Sword for Child Anthropometric Deficits in South and Southeast Asia

Raza Mohammad & Dhananjay W. Bansod

This study investigates the complex association between maternal age at first birth and adverse child health outcomes, low birth weight, stunting, wasting, and being underweight, across eight South and Southeast Asian countries (Bangladesh, India, Indonesia, Maldives, Nepal, Pakistan, Philippines, Timor-Leste), using cross-sectional data from recent Demographic and Health Surveys (2016-2022). Maternal age was categorized as early (<20 years), mid (20-29 years), and late (30+ years). The prevalence of early first births varied significantly, peaking at 54.3% in Bangladesh. Findings indicate that maternal age acts as a double-edged sword: early motherhood (<20 years) was a significant risk factor for stunting in Timor-Leste [AOR: 2.0 (95% CI: 1.20-3.34)] and being underweight in India [AOR: 1.17 (95% CI: 1.10-1.23)], yet was paradoxically protective against wasting in Nepal [AOR: 0.41 (95% CI: 0.19-0.90)]. Conversely, late motherhood (30+ years) increased the risk of low birth weight in Pakistan [AOR: 2.61 (95% CI: 1.05-6.45)] and Timor-Leste [AOR: 2.67 (95% CI: 1.05-6.80)], but provided strong protection against stunting in Timor-Leste [AOR: 0.27 (95% CI: 0.12-0.61)] and against both wasting [AOR: 0.14 (95% CI: 0.02-0.94)] and being underweight [AOR: 0.33 (95% CI: 0.10-1.10)] in the Maldives. In countries like Bangladesh and the Philippines, socio-economic covariates were more dominant, nullifying the age-outcome association. In conclusion, maternal age at first birth is a significant yet highly heterogeneous factor, demanding nuanced, country-specific public health policies that address the diverse risks of both early and late childbearing.

10458: Modeling Suicide Mortality in Kerala (2018-2022): A Multi-Dimensional Analysis of Temporal, Demographic and Spatial Determinants

Abdul Fathah & TR Dilip

Kerala, despite its robust health and educational achievements, continues to exhibit one of the highest suicide rates in India. This study models suicide mortality in Kerala from 2018 to 2022 through a multi-dimensional statistical framework, examining temporal, demographic, and spatial determinants. Using suicide records sourced from the National Crime Records Bureau (NCRB) and state vital registration systems, district-wise suicide rates per 100,000 persons were computed by applying cubic spline interpolation to population estimates. Descriptive and inferential analyses were performed to evaluate trends and associations. The Mann-Kendall test was employed to detect monotonic temporal trends; Welch's two-sample t-test assessed gender-based differences; Chi-square tests examined associations between religion and residence; and stratified Mann-Kendall analysis evaluated age-specific trajectories. Findings reveal a persistently male-dominated suicide pattern, with men comprising approximately 80% of total

cases across all years ($p < 0.001$). Although overall suicide counts fluctuated modestly, no significant monotonic trend was observed between 2018 and 2022 ($p > 0.05$), indicating temporal stability. Age-wise analysis showed that middle-aged (45-59 years; 27.9%) and elderly (60+ years; 27.1%) populations accounted for the highest proportions, yet no significant time-based variation emerged within age strata. A strong association between religion and residence type ($\hat{I}^2 = 1626.84$, $p < 0.001$) underscores demographic heterogeneity, with rural districts contributing nearly 80% of total suicides. Spatial analysis further revealed concentration in southern districts such as Kollam, Thiruvananthapuram, and Thrissur. Collectively, the results highlight a stable but demographically skewed suicide pattern, emphasizing gendered vulnerability, rural predominance, and faith-based spatial variation.

*****The End*****