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बेहतर भविष्य के लिए क्षमता निर्माण
Capacity Building for a Better Future

IIPS International Seminar 2021

on

Pandemic and Population Dynamics
18-20 March 2021

Seminar Report

Seminar on Virtual Platform

International Institute for Population Sciences

Deonar, Mumbai 400088

<https://www.iipsindia.ac.in>



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Short Programme (Indian Standard Time)

Sr.No.	Date/Time	Session Title
1	18th March 2021 11.00 AM	Inaugural Session
2	18th March 2021 11.30 AM-1 PM	Plenary Session 1: Major Finding of National Family Health Survey -5
3	18th March 2021 2-3.30 PM	Technical Session -1A: Estimation and Modelling of COVID19 Pandemic
4	18th March 2021 2-3.30 PM	Technical Session -1B: Health Care Utilization -I
5	18th March 2021 2-3.30 PM	Technical Session -1C: Social Policies during Pandemic
6	18th March 2021 3.45-5.15 PM	Technical Session -2A: Data Collection during Pandemic: Challenges and Opportunities
7	18th March 2021 3.45-5.15 PM	Technical Session -2B: Health Care Utilization -II
8	18th March 2021 3.45-5.15 PM	Technical Session -2C: Utilization of RCH Services during Pandemic
9	18th March 2021 5.30- 7 PM	Plenary Session 2: Estimation and Projection of Pandemic
10	19th March 2021	Plenary Session 3:

	11.30 AM-1 PM	Census Estimates for 2021: Methods and Rationale
11	19th March 2021 2-3.30 PM	Technical Session -3A: Spatial Pattern of Pandemic
12	19th March 2021 2-3.30 PM	Technical Session -3B: Impact of COVID19 on Lives of People -I
13	19th March 2021 2-3.30 PM	Technical Session -3C: Morbidity and Mortality during Pandemic and Non-Pandemic Period
14	19th March 2021 3.45-5.15 PM	Technical Session -4A Migration and Pandemic
15	19th March 2021 3.45-5.15 PM	Technical Session -4B: Impact of COVID19 on Lives of People -II
16	19th March 2021 3.45-5.15 PM	Technical Session -4C: Nutritional Status of Children and Adolescents: Observations from CNNS
17	19th March 2021 5.30-7 PM	Plenary Session 4: Public Health in the Era of Pandemic
18	20th March 2021 11.30 AM-1 PM	Plenary Session 5: Longitudinal Ageing Study in India (LASI): Overview and Major Findings
19	20th March 2021 2-3.30 PM	Technical Session -5A: Ageing, Health and Living Arrangements
20	20th March 2021 2-3.30 PM	Technical Session -5B: Reproductive and Child Health
21	20th March 2021 2-3.30 PM	Technical Session -5C: Population Characteristics and Components
22	20th March 2021 3.45-5.15 PM	Technical Session -6A: Non-communicable Diseases
23	20th March 2021	Technical Session -6B:

	3.45-5.15 PM	Health and Nutrition
24	20th March 2021 3.45-5.15 PM	Technical Session -6C: Gender Issues during Pandemic
25	20th March 2021 5.30-7 PM	Plenary Session 6: Psycho Socio-economic Impact of COVID`-19
26	20th March 2021 7-7.30 PM	Valedictory Session

Objective of the Seminar

COVID-19 pandemic has an unprecedented global impact on all aspects of population dynamics. Historically, pandemics mostly affected mortality and economy of the countries. However, this pandemic is very unusual, and continued to influence all the components of population dynamics and all segments of the population directly or indirectly. Along with mortality and morbidity issues of COVID-19, mobility restrictions imposed for internal and international travel raised the attention of all sections including policymakers. Pandemic led to delays in marriages due to the circumstances of lockdown along with child marriages induced by poverty. There has been a debate on the likely impact of the pandemic on the fertility on account of unmet need of family planning.

The pandemic has a larger impact on socio-psychological and economic lives of the people. The return migration induced by loss of job and dwindling remittance flow adversely affected families, communities and economy. Loss of jobs and curtailment in the wages, and prolonged stay without any interaction with other family members and friends have caused socio-economic and mental stress. Patients of COVID-19 faced the additional risk of developing mental health problems due to stigma and discrimination from their family members and the community. Even the front-line health care providers faced stressful condition while discharging their COVID-19 duties. It is also widely highlighted in the media that gender inequality and gender discrimination increased during the pandemic period.

Most services in health care facilities crippled during this period due to the restriction in the movement and the fear of infection. Furthermore, health providers were preoccupied with the treatment of COVID-19 cases with scant attention for other essential services such as maternal, child health, abortion and services for non-communicable diseases. COVID-19 has also challenged the capacity of the public health system of developing and developed countries. The limited health infrastructure and resources in developing countries were burdened with additional responsibility of addressing COVID-19; even the developed countries struggled to manage so many cases of COVID-19 patients. On the positive side of this pandemic, countries that were lagging in the completeness of the Civil Registration System were able to give daily COVID-19 infected cases, death and recovery.

The spurt of virtual platforms for communication, internet services, and health products during this period was tremendous. There is a deluge to the development of a vaccine for the virus globally by the pharmaceutical companies. Ventilators and ICU equipment for the care of patients were essential, and companies responded to it very emphatically. Furthermore, health and hygiene products manufactured and appeared in great quantity in the market leading to the behavioural change in the hygienic practices. With this current scenario of the pandemic and related issues, the International Institute for Population Sciences organised IIPS International Seminar during 18-20 March 2021 using a virtual platform. There were six plenary sessions and eighteen technical sessions with various themes in line with the topic of the seminar.

Key policy recommendations and findings from the sessions

The plenary and technical sessions were conducted on all the three days of the seminar. A total of six plenary sessions and 18 technical sessions were conducted during the seminar. In all the sessions, the eminent speakers / authors of the papers elaborated their research and knowledge relevant to the theme of the sessions. The presentations highlighted many significant and critical key findings to tackle the ongoing unprecedented pandemic in a more informed manner. Based on the presentations and discussions, some important suggestions and policy recommendations were made for different stakeholders to consider.

The themes of plenary and technical sessions are as follows:

Plenary Sessions

1. Major Finding of National Family Health Survey -5
2. Estimation and Projection of Pandemic
3. Census Estimates for 2021: Methods and Rationale
4. Public Health in the Era of Pandemic
5. Longitudinal Ageing Study in India (LASI): Overview and Major Findings
6. Psycho Socio-economic Impact of COVID-19

Technical Sessions

1. Utilization of Health Care and Pandemic
2. Morbidity and Mortality during Pandemic and Non-pandemic Period
3. Migration, Remittances and Pandemic
4. Social Policies, Role of Media and Pandemic
5. Marriage, Fertility, Family Planning and Abortion Services
6. Pandemic and Gender Issues
7. Spatial Pattern and Pandemic
8. Data Collection during Pandemic: Challenges and Opportunities

	Policy Recommendations
Projections & prevalence	<ul style="list-style-type: none">• The application of the mobile apps and artificial intelligence needs to be verified.• The Govt. of India needs models like INDSCI-SIM for short-term projections (during pandemic, projections are very short-term and not constant with reality) that help health systems to handle the critical situations.• Methodology of estimating migration trends due to COVID-19 will have to be established.• Population projection exercise should be taken up else the latest available data can be reviewed from the perspective of fertility, mortality and more importantly migration assumptions of how well it gels in the COVID-19 context,.

	<ul style="list-style-type: none"> • All the age groups needs equal attention and consideration as when variants started striking there is a shift in age groups affected by SARS-CoV-2 from older ages to younger ages. • In India, there is an urgent requirement of gender-disaggregated data, as it is not only incomplete but also inconsistent. India, has not reported gender-disaggregated data on death since May 2020, and cases after September 2020. • The impact of COVID-19 was considerably higher among poor economic categories.
<p>Coverage</p>	<ul style="list-style-type: none"> • Health care can move firstly in the direction of home care pharmacies, screening and treatment and secondly to tele medicine mode. These models may be expanded. • Herd immunity concept too changes with new variants, thus there is an urgent need for pan India corona vaccination. • Partial vaccination is another challenge, which could also contribute to virus mutations. • The identified hotspot areas should be prioritized by health policy implementers. • SC/ST migrant workers were the most vulnerable during COVID-19, hence need to be prioritized.
<p>Policy reconsiderations</p>	<ul style="list-style-type: none"> • Health expenditure accounts largest share of consumption basket of elderly households and health insurance coverage among elderly household remained low which needs to be reviewed. • Coping strategies and geriatric policies in India regarding elderly during the pandemic scenario needs to be reconsidered in view of the pandemic situation.
<p>Policy consideration</p>	<ul style="list-style-type: none"> • There should be a provision for special health insurance coverage for transgender and allocate appropriate fund for supporting the livelihood of transgender.
<p>Collaborative initiatives</p>	<ul style="list-style-type: none"> • RGI may collaborate with Ministry of Labour and Employment in their two major surveys to be launched in April 2021 covering more than 1 lakh households, to have some estimates of population. This will be for a period of 6 months. Migration and population projections should be looked at. • There are opportunities to collaborate (public and private sectors) and innovate for multi-sectoral responses.
<p>Awareness</p>	<ul style="list-style-type: none"> • It is imperative to have relevant IEC materials to create awareness among women, and involve frontline functionaries to have universal access. • Create awareness about the point of contacts for diagnostics, facilities being provided at the hospitals and about transportation, • The vaccines only reduce the severity of COVID-19 infection and not transmission of SARS-CoV-2. • Increased focus on nutrition education across class groups and screening of children for early detection can help in prevention and control of non-communicable diseases in childhood.

<p>Research / Intervention strategies</p>	<ul style="list-style-type: none"> • Nutrition education not only for slum residents but also for those from non-slum areas is an urgent need to check the spread of micronutrient deficiencies. • The threat of this pandemic can be efficiently addressed by the government through intervention strategies of medical and legal dimensions consisting of financial packages to ensure smooth life and free vaccination to all even by the private sector. • Government interventions are required to make digital platform strong, transparent and reliable for future pandemics. • There is a need to understand government strategies to tackle the COVID-19 pandemic, as the pandemic is not uniformly spread across space and socio-economic groups. • There is need to conduct regular screening to understand the mental health of Nurses in view of the prevalence of depression, anxiety and stress commonly present among Nurses (25-35 years), thus, flexible work schedule, insurance to families of nurses, etc., should be provided to them. • People should adopt different ways of stress free environment as mental health issues were triggered by lockdown. • Management of NCDs (coronary heart disease, cardiovascular disease followed by heart disease, chronic kidney disease and coronary artery disease, diabetes mellitus and hypertension) should be focused as the risk of severity for COVID-19 disease is the highest for degenerative diseases. • There is a need to design and implement sensitive policies concerning migrants working in textile industries. • Social support from neighbours should be important for coping mechanism. • Research is needed for assessing long term impact of pandemic on adolescent.
<p>System strengthening</p>	<ul style="list-style-type: none"> • The application of resilience index to health data for India will be helpful in strengthening the system of poor performing states by adopting good practices of the better performing states. • There is further scope to make more efficient use of the resources offered by the clinics (e.g. Mohalla clinics) during the pandemic and thereafter. • ASHA role should be strengthened as she is pivotal during pandemic to address the various problems.
<p>Modified data collection techniques</p>	<ul style="list-style-type: none"> • The tele-monitoring enables timely situational awareness in low-technology areas. • There is a need for a comprehensive method of data collection of birth weight to get an accurate prevalence of low birth weight.

Key findings from Plenary Sessions

<p>Major Finding of National Family Health Survey -5</p>	<ul style="list-style-type: none"> • The quality of care has been improved in most of the Phase-I states / UTs, but still below the level of universal access. • High prevalence of overweight and obesity among adults. • Men have higher prevalence of hypertension and high blood glucose levels than women.
<p>Estimation and Projection of Pandemic</p>	<ul style="list-style-type: none"> • The available projections are very short term; they perhaps are not constant with reality. • The application of the mobile apps and artificial intelligence needs to be verified.
<p>Census Estimates for 2021: Methods and Rationale</p>	<ul style="list-style-type: none"> • Population projection exercise should be taken up else the latest available can be reviewed from the perspective of fertility, mortality and more importantly migration assumptions of how well it gels in the COVID-19 context. • Methodology of estimating migration trends due to COVID-19 will have to be established.
<p>Public Health in the Era of Pandemic</p>	<ul style="list-style-type: none"> • COVID-19 affected the continuum of care in the case of patients with chronic conditions. • Evidence shows breast cancer and cervical cancer screening has come down. • The delays in cancer screening has led to under diagnosis of cancer. • There was a 60% decline in clinical trials for cancer drugs.
<p>Longitudinal Ageing Study in India (LASI): Overview and Major Findings</p>	<ul style="list-style-type: none"> • The LASI will help in developing a more comprehensive national health policy framework for older persons and expanding the health care and social security programmes to cover all older adults and elderly persons in the country. • Household income: based on wealth flow theory, research may be conducted to see the wealth transfer among the households.
<p>Psycho Socio-economic Impact of COVID19</p>	<ul style="list-style-type: none"> • Consequences for the young are huge, likely stalling if not overturning the progress made over the recent past in education, in access to health care, in empowering women and girls, it will widen the inequity between rich and poor, between boys and girls, and likely will have long lasting effects. • In India, at least one member of two/third of households had lost their jobs, many were aware of at least one social protection schemes, and that was PM Jan Dhan Yojana followed by dry food ration. Mental health was also affected; females were more affected than males, and those who were socially and financially distressed.

Key research findings from the Technical Sessions

- The SARIMA model is suitable for projecting daily COVID-19 cases.
- Fine-tuned Rins estimates should be used over Rcase to retrospectively assess the interventions.
- Diabetes Mellitus was the most common morbidity associated with death.
- During pandemic, there was discontinuation of mid-day meal programme, disruption in public distribution system (PDS) and adverse impacts on migrants. In addition, there were many administrative bottlenecks in delivering food to poor.
- Three types of stigma- social, psychological and material/economic stigma were identified during the pandemic.
- The media world also faced negative and positive experience during pandemic reporting. Many had to experience the burden of financial instability due to the lack of advertisement money.
- Various data collection methodologies (surveys – in person interview and CRS - registration) were adopted in view of insufficient data on COVID-19 deaths. Mobile Phone Surveys may be used to assess the excess mortality due to COVID-19.
- SC/ST migrant workers were the most vulnerable during COVID-19.
- The total numbers the elderly population who migrated during lockdown was less than the younger population.
- During the pandemic lockdown, emissions of carbon-dioxide, nitrogen dioxide, particulate matter, etc., in all countries were reduced. It showed that after February-March 2020, everywhere there was a steep or gentle decline and Air Quality Index (AQI) was good to satisfactory.
- Regarding education by social groups, SCs have lowest percentage of access to devices (laptop/computers). Students whose parents have better occupation and education show positive correlation with laptop/computers.
- Poor children are more likely to have higher Composite Index of Anthropometric Failure (CIAF) as compared to non-poor children, in both slum and non-slums.
- Attention needs to be paid on the demand of specialized care and health services among the older adults living both in co-residential arrangements and separate ones.
- Lack of awareness and gender disparity impact health care utilization by elderly. The public policy needs to emphasis vulnerabilities faced in old age, caused by an interlocking system of inequality, with special impetus on gender.
- The physically exhausted and stressed caregivers unknowingly resorted to elderly abuse and neglect, in spite of having good relationship among family members.
- Net state domestic product, a proxy for the economic performance of a state, has the highest positive impact on the choice of destination among migrants from Uttar Pradesh.
- The counselling to taller stature pregnant women should be more emphasised as a positive sign for successive vaginal delivery, and indirectly may lower the caesarean section rate.
- Focus should not only be on introducing a programme but proper implementation and governing it by maintaining its standards and efficiency should also be focused.
- During the pandemic, there was an increase in the number of cases of domestic violence, suicide, murder, sexual violence, social exclusion, unhealthy lifestyle, stressful working

condition, gender discrimination, etc. This lead to changing socioeconomic status and health issues among women, however, most of the women were able to stand strong and overcome the situation.

- Loss of employment along with increased burden of housework and caring responsibilities during lockdown had financial as well as psychological impacts on the women folk.

Appendix I: Highlights of the Sessions

The three days seminar on virtual platform was organized by IIPS-Mumbai from 18th – 20th March 2021. There were six plenary sessions and eighteen technical sessions with various themes in line with the topic of the seminar “**Pandemic and Population Dynamics**”.

The six plenary sessions were conducted under the following major themes:

1. Major Finding of National Family Health Survey -5
2. Estimation and Projection of Pandemic
3. Census Estimates for 2021: Methods and Rationale
4. Public Health in the Era of Pandemic
5. Longitudinal Ageing Study in India (LASI): Overview and Major Findings
6. Psycho Socio-economic Impact of COVID19

The eighteen technical sessions were conducted with the following different themes:

1. Utilization of Health Care and Pandemic
2. Morbidity and Mortality during Pandemic and Non-pandemic Period
3. Migration, Remittances and Pandemic
4. Social Policies, Role of Media and Pandemic
5. Marriage, Fertility, Family Planning and Abortion Services
6. Pandemic and Gender Issues
7. Spatial Pattern and Pandemic
8. Data collection during pandemic: challenges and opportunities

An elaborated description of all the plenary and technical sessions are as follows:

The Plenary Sessions

Plenary Session 1

Major Finding of National Family Health Survey -5

Chair: Prof. K.S. James

Discussant: Dr. Dharendra Kumar

The Plenary Session 1, was a dissemination session of major finding from NFHS-5, phase 1 survey. **Five** presentations were made by the IIPS faculty who were involved with the NFHS-5 survey. The major findings and the key recommendations were made during the presentation.

“Tracking Maternal and Child Health Indicators: Evidence from NFHS-5” – Prof. S.K. Singh

At the outset, a brief overview of the various rounds of NFHS surveys and details of ongoing NFHS-5 was discussed. The findings highlighted were: (i) substantial increase in maternal and child health (MCH) indicators has been observed since NFHS-4 and hence, it likely that India will attain the MCH SDG goals, (ii) an increase in C-section births, (iii) anaemia burden continues to remain and therefore, apart from the current programme, new strategies need to

be adopted to control anaemia, (iv) a decline in child mortality in most states, and (v) considerable improvement in vaccination coverage across all states/UTs. Overall, the results for the 17 States and 5 Union Territories show promising improvements in maternal and child health.

“Fertility and Family Planning: Opportunities and Challenges” – Prof. Chander Shekhar

The key findings included fertility rates, age at marriage, contraceptive use and demand, and quality of care in family planning. *Changes overtime and differentials by education and district level estimates* for selected indicators on the topic were also discussed. It was highlighted that **the TFR** declined further and was below replacement level in most of the states except a few. Overall, women in the first phase States/UTs continue to have fewer children. Adolescent motherhood continues to be high in some states (AP, Assam, Bihar, Tripura and WB). The short birth interval for 2+ births is also a cause of concern in a few states. Overall, the use of modern family planning methods has improved since NFHS-4.

“Nutritional Transition in India” – Dr. Laxmikant Dwevedi

The key findings included the indicators diarrhoea, child-feeding practices, nutritional status of children, and anaemia among children. A brief explanation was given to understand the changes in sample design over the various rounds of NFHS. NFHS-5 results show that in some states such as Assam and Bihar showed significant increase in the prevalence of diarrhoea. The intake of adequate diet among children has improved across almost all states. Nutritional status has improved in many states/UTs despite the short interval since NFHS-4, but overall malnutrition has remained nearly unchanged over the last 4 years (as drastic changes in stunting and wasting are unlikely in a short period of time).

“Adult Health and NCDs” – Dr. Sarang Pedgaonkar

The issues discussed were malnutrition among women and men, hypertension, blood glucose levels, and tobacco and alcohol consumption. Thinness (measured by a body mass index below normal) has decreased across most States/UTs for both women and men. However, over-nutrition continues to be a health issue for adults. The increase in overweight or obesity in women and men continues in most States/UTs. For both women and men, there is considerable variation in the prevalence of high or very high random blood glucose levels across States/UTs. The prevalence of elevated blood pressure (hypertension) is also somewhat higher in men than in women. Across most of the States/UTs, at least one-fifth of women and men have hypertension.

“Women’s Empowerment and Domestic Violence” - Prof. Hem Lhungdim

The key findings included use of hygienic methods during menstruation, employment and cash earnings, freedom of movement, participation in household decision making, women’s control and use of income, use of bank account, mobile and internet, ownership of assets (land/home) and gender role attitudes. Women’s empowerment indicators portray considerable progress across all States/UTs included in Phase 1.

Based on the four deliberations, some key highlights and recommendations were made which are as follows:

Main highlights of the presentations and discussion

- Increase in C-section births is the real challenge for any maternal specific programmes.
- Despite implementation of anaemia free India programmes, there is burden of anaemia in many states.
- Despite state level improvements in MCH indicators, implicit heterogeneity among districts are the real challenge.
- Adolescent motherhood is still high (>15%) in some states (Andhra Pradesh, Assam, Bihar, Tripura and West Bengal).
- Majority of 2+ births still occur within 36 months of birth interval, which is a serious concern to be considered.
- Proportion of women (20-24 years) marrying before the legal age is still high in Assam, Bihar and West Bengal.
- Notable rise in use of Traditional methods in Bihar, Gujarat and Kerala, which is a matter of research to know the possible reasons behind it, which may be adopted by other states as well.
- Critical challenge is posed, as there is a decline in satisfying the demand for modern family planning methods. However, in Bihar, Gujarat and Himachal Pradesh, the demands for FP methods were unmet among one-fifth of married adolescents (15-19).
- The quality of care has improved among most of the phase-I states/UTs, but were still below from universal access. It is imperative to have relevant IEC materials to create awareness among women, and involve frontline functionaries to have universal access.
- Malnutrition status is still a cause of concern in many states.
- The overall stunting in all states have increased.
- While explaining the change in the level of child nutritional status between the two surveys, few points should be considered- month of interview, point versus interval estimate, clustering (covers small villages), allocation of sample size, change in the boundary of districts.
- The underlying determinants and intervention coverage factors contribute maximum in reducing stunting among the children under five years of age.
- High prevalence of overweight and obesity among adults.
- Across most states/UTs at least one-fifth of women and men suffer from hypertension.
- Men have higher prevalence of hypertension and high blood glucose levels as compared to women.
- A significant proportion of adults have hypertension or high blood glucose at early age.

- Spousal violence is still a matter of concern as the percentage of women experiencing it are substantial and face during young age.

Plenary Session 2

Estimation and Projection of Pandemic

Chair: Prof. C.M. Pandey

Discussant: Prof. U.S. Mishra

The Plenary Session 2, was on estimations and projections of pandemic. In this session, **four** presentations were made by the external resource persons competent enough to elaborate on their designated topics.

“COVID-19 Identification through Mobile Apps and Artificial Intelligence” - Dr. Arni S.R. Srinivasa Rao

Dr. Rao proposed the use of a machine-learning algorithm to improve possible COVID-19 case identification more quickly using a mobile phone-based web survey. This method could reduce the spread of the virus in susceptible populations under quarantine. However, the application of the method needs to be verified.

“Covid Forecasting - Extending SEIR Model with Machine Learning (AI)” - Mr. Modit Jain

The presentation started with a brief explanation on the limitation of SEIR model and how by creating dynamic coefficients using as covariates it has been improved.

“Models for COVID-19 Spread in India” - Dr. Gautam Menon

The presentation highlighted about the INDSCI-SIM model. Scientists from India who are interested in epidemiology and modelling, have come together to build a model, named INDSCI-SIM. It is the first detailed, state-specific, epidemiological, compartmental model made in India for estimating the spread of COVID-19. The model can compare the effects of multiple non-pharmaceutical interventions — such as different types of lockdowns, quarantines and expanded testing — in altering the trajectory of the pandemic. The Govt. of India benefitted from the analysis and projection of cases for short term and it helped health systems to handle the critical situations.

“Estimation of a District-level Vulnerability Index for the Management of and Response to the COVID-19 Epidemic in India” - Dr. Rajib Acharya.

The vulnerability index identified a number of vulnerable districts in India, which currently do not have large numbers of COVID-19 cases, but could be strongly impacted by the epidemic. The index aims to help planners and policy makers effectively prioritise regions for resource allocation and adopt risk mitigation strategies for better preparedness and responses to the COVID-19 epidemic. However, the index largely depends on NFHS-4 data, which has been considered as a limitation.

The following are some of the key highlights and recommendations based on the four deliberations:

Main highlights of the presentations and discussion

- The application of the mobile apps and artificial intelligence needs to be verified.
- The Govt. of India benefitted from the analysis and projection of cases from INDSCI-SIM model for short term and it helped health systems to handle the critical situations.
- The projections are very short term; they perhaps are not constant with reality.
- The vulnerability index identified a number of vulnerable districts in India, which currently do not have large numbers of COVID-19 cases but could be strongly impacted by the epidemic.
- The vulnerability index aims to help planners and policy makers effectively priorities regions for resource allocation and adopt risk mitigation strategies for better preparedness and responses to the COVID-19 epidemic. However, the index largely depends on NFHS-4 data, which has been considered as a limitation.

Plenary Session 3

Census Estimates for 2021: Methods and Rationale

Chair: Dr. Pronab Sen

Co-chair: Dr. Vivek Joshi

Panel members:

Prof. Amitabh Kundu

Prof. P.M. Kulkarni

Prof. Arvind Pandey

Dr. K.M. Sathyanarayana

Dr. A.A. Jayachandran

As the 2021 census has been postponed by one year due to the pandemic, there is a concern that a decadal data is being missed. The discussions in the sessions were focused to answer two questions: (i) what are the variables and parameters on a decadal basis?, and (ii) What are the appropriate methodology for interpolation?

Dr. K.M. Sathyanarayana

The presentation started with a review on the status of census in other South Asia Pacific regions (Indonesia, China, Afghanistan and Laos). Dr. Sathyanarayana suggested that while undertaking the census 2021, the principles and recommendations on population and housing census by UN for 2020 rounds needs consideration as some of the sections have undergone modifications especially questions related to economics and disability. He emphasized the fact that the census activity is important as three fourth of the denominators of SDG indicators come

from census. He found the questionnaire (from RGI) for census 2021 and 2011 same. He also discussed different domains for 2021 estimations and highlighted economic activity and migration (place of birth and place of last residence) that needs special attention due to the pandemic situation. He further elaborated on suggestive indicators of broad domains and disaggregated level of estimations. He insisted on using the existing standardized methodologies for careful assumptions and estimations and proposed GIS technologies to estimate migration trends.

Prof. P.M. Kulkarni

Prof. Kulkarni mainly focused demographic indicators, population size, age structure and spatial distribution for census 2021. With the example of 2011 projected vs census population projections, he stated that these differences are expected because the annual growth rates vary for every state. He insisted on having revised projections in India too, like UNFPA comes out for revised projections for all countries including India (not for states) in their World Population Prospects Report. In India also, revised projection can be done for factors like changes in the trend in fertility, trend in mortality, additional auxiliary information on migration, urbanization etc.

He further reiterated Dr. Joshi's (Registrar General) suggestion that the data from SRS units (fertility and mortality) can be revised in every two years, so that the revised data is extrapolated than the previous data, which will be more close to the reality. For this, he recommended that the projection activity can be done through a **Projection Unit** in the office of Registrar General (as they have estimates for all units and disaggregated units to lowest level) with the support of National Population Commission (NPC), National Statistical Commission (NSC) and National Institution for Transforming India (NITI Aayog).

Besides, IIPS as an academic institute and Population Research Centres (PRC) can carry out their own research activities, so that their results will act as checks on the revised national projections. They may also help to give data/projections on migration and urbanization as there is no nationally representative data on them. He further concluded by stating that the direct impact of Covid-19 on 2021 deaths is not expected to be large as flu had on 1921 census enumeration. However, there can be indirect impact of COVID-19 on denial of medical facility, decline in vaccinations, decline in contraceptive services, and this could bring about changes in fertility and mortality.

Dr. A.A. Jayachandran

Dr. Jayachandran started with the MHA's assurance of providing census before 2024. The fieldwork is expected to be over by 2023 and this time mobile application is introduced so that residents can self-enumerate. He also stated that in almost 15 European countries census has been delayed. He emphasized the importance of *sample survey/mini census, with now focusing the newly created districts* also. Further, he suggested that, in the *questionnaire the Total Fertility Rate (TFR) may be looked for past 2-3 years* instead of last one year, as it can be an opportunity to access Mission Parivar Vikas (MPV) programme (implementing for the past 6-

7 years under NHM) which has TFR as one of its indicators at district level. He also reiterated other speakers view of conducting census with the existing software. Amongst the alternate methods he laid importance on using both traditional data and GIS with other methods. In his concluding remarks again laying importance on mid projection, he suggested that they can be done as collaborative work between the Census office and academic institutes.

Prof. Amitabh Kundu

Prof. Kundu focused on two points: (i) for immediate use, the available data sets from different sources may be collated so that the researchers and administrative officials can use this micro-level data to derive their precise estimates. However, the demographic projections like – population, migration, and literacy projections, which are key for overall development scenario, may also be done when next census is conducted, and (ii) RGI may collaborate with Ministry of Labour and Employment to incorporate certain questions for demographic parameters in their questionnaires which has been prepared to take up two big surveys covering more than one lakh households to have some estimates.

Prof. Arvind Pandey

Prof. Pandey also suggested to increase the reference period (to include pre COVID-19 and COVID-19 period) of fertility and mortality in the questionnaires during SRS survey as it has already been done in second phase of NFHS-5 survey. Regarding the migration projection, he also agreed to collaborate with Ministry of Labour to have different kind of information about the migrants and give migration projections.

Dr. Pranob Sen

Dr. Sen laid the importance of the role of household listing for census. He also said that while using different data sets from various resources needs to be reconsider as they use population based frames which are not very reliable. Due to pandemic, the migration, fertility and mortality projections are expected to have very different patterns. Regarding the SRS survey, he said because of the frame changes the value goes down with time. Nature of SRS in terms of SRS sites needs more thinking, if this situation persists.

Main highlights of the presentations and discussion

- There is a need to identify a list of key prioritized demographic and socioeconomic indicators that could be estimated, methodology including level of disaggregation and data sets based on the fragility of the data set.
- There is a need to open up different anonymized data sets for data mining (CRVS, SRS, NFHS rounds, etc.) to the experts.
- Population projection exercise should be taken up else the latest available projection can be reviewed from the perspective of fertility, mortality and more importantly migration assumptions of how well it gels in the COVID-19 context
- Methodology of estimating migration trends due to COVID-19 will have to be established.

- Economic categories have seen a certain impact due to COVID-19; specifically, the private and non-formal sectors and there is a need to appropriately reflect for 2021 period.
- RGI may collaborate with Ministry of Labour in their two major surveys to be launched in April 2021 covering more than 1 lakh households, to have some estimates of population. This will be for a period of 6 months. Migration, population projections should be looked at.
- In NFHS-5 Phase 2, birth and death information have to be collected for last two years which will provide information on pre and post Covid-19 (which can be pooled for the completed states in Phase 1). In SRS, same structure can be adopted.

Plenary Session 4 **Public Health in the Era of Pandemic**

Chair: Prof. H.P. Sachdeva

Discussant: Dr. Vani Sethi

The Plenary Session 4, was on public health in the era of pandemic. The presentations made during this session focused on how far public health has been successful or failed to deal with this pandemic situation, the challenges in dealing with chronic diseases, cancer, lastly how the SARS COV 2 variants are working and how to tackle with it.

“Public Health in Covid-19: Success and Failure” - Nilima Khirsagar

In success, Dr. Nilima highlighted the shortened time for innovations (in terms of ventilators, robots for sanitations, repurposed drugs and development of vaccine) to reach society. India did a commendable job in the case of vaccines. However, the adverse events though lesser in number, was not reported properly. Vaccine hesitancy is an outcome of this in India. India did not capitalize on other innovations other than in the case of vaccines. Scientific publications were skewed because politics/competition between companies and between countries competing for this space.

“Challenges in Managing Chronic Diseases at the Time of Pandemic” – Dr. Sangamitra Pati

Dr. Sangamitra highlighted that Covid-19 affected the continuum of care in the case of patients with chronic conditions. One main reason is that patients perceived hospital as a source of infection. For those with more than one chronic conditions, challenges were more due to coordinating the availability of two or three physicians. Elderly couples were noted to be quick in adapting to such treatment access issues, which was facilitated with efficient support from the health system.

“Impact of Covid-19 on Cancer Diagnosis Care” – Dr. Ramana Kumar Agnihotram

Dr. Ramana described how transitions in role of health service providers during Covid-19 in different countries has effected cancer care. Evidence shows breast cancer and cervical cancer screening has come down. The delays in cancer screening has led to under diagnosis of cancer.

Treatment delay has contributed to a significant increase in cancer mortality in their study setting. Further, he added that there was a 60 % decline in clinical trials for cancer drugs.

“SARS-CoV-2 Variants, Padmashri” – Dr. R. R. Gangakhedkher

Dr. Gangakhedkher highlighted the threats posed by the SARS-CoV variants in control of this epidemic. Government of India through Genomic Surveillance is monitoring the various variants. When variants started striking, there is a shift in age groups affected by COVID-19 from older ages to younger ages. He highlighted the challenges in covering/vaccinating 1.4 billion people in India. The estimated time to complete vaccination has reduced from 4.3 years to 3 years, which can be shortened further with a wider engagement of private sector. These vaccines only reduce the severity of COVID-19 infection and not transmission of COVID-19. Herd immunity concept too changes with new variants. He insisted on the requirement of pan corona vaccine. Partial vaccination is another challenge, which could also contribute to virus mutations.

Some of the key highlights and recommendations based on the discussions are as follows:

Main highlights of the presentations and discussion

- India did a commendable job in the case of vaccines, adverse events though lesser in number was not reported properly. Vaccine hesitancy is an outcome of this.
- The funding for type of research and trials happening in India in terms of type of drugs needs to improve.
- The time delayed between the time of causality and actual case coming needs to be reduced
- Real Time Date of stimulation is needed.
- Analysis of risks for elderly during COVID-19 is also needed.
- COVID-19 affected the continuum of care in the case of patients with chronic conditions.
- Challenges around the care were: unawareness about the point of contacts for diagnostics, fear of going to the hospitals, transportation, etc.
- Solutions can be: firstly, health care can move in the direction of home care pharmacies, screening and treatment; and secondly, to tele medicine mode. These models may be expanded.
- Coping strategies and geriatric policies in India, regarding elderlies during the pandemic scenario needs to be reconsidered in view of the pandemic situation.
- Evidence shows breast cancer and cervical cancer screening has come down.
- The delays in cancer screening has led to under diagnosis of cancer.
- There was a 60% decline in clinical trials for cancer drugs.
- Reduced charity for cancer patient.
- Challenges: care, screening and treatment took a back seat.
- Government of India through Genomic Surveillance is monitoring the various variants.

- When variants started striking, there is a shift in age groups affected by *SARS-CoV-2* from older ages to younger ages.
- The vaccines only reduce the severity of COVID-19 infection and not transmission of SARS-CoV-2.
- Herd immunity concept too changes with new variants, thus there is an urgent need for pan corona vaccination.
- Partial vaccination is another challenge, which could also contribute to virus mutations.

Plenary Session 5

Longitudinal Ageing Study in India (LASI): Overview and Major Findings

Chair: Prof. S. Siva Raju

Discussant: Prof. Abusaleh Shariff

The Plenary Session 4 was on dissemination of major findings from LASI survey (wave -1). LASI is a major initiative of the Govt. of India jointly with the International Institute for Population Sciences to generate scientific data base for India's growing elderly population (60+ years). The data generated through LASI survey will help the policy makers to have elderly friendly policies as per Indian context. The five speakers enumerated the findings.

“Scope, Relevance and Methodology of LASI Survey” - Prof. T.V. Sekher

Prof. Sekher explained the scope, relevance and methodology of LASI survey. As per the 2011 Census, we have around 9 percent of elderly population (60+). By 2050, it is expected to increase around 20 percent, which is 320 million and if we consider 45 years and above population, it will be around 600 million. Therefore, he highlighted the significance of relevant data base for rapid population increase, when there is no nationally representative data for growing older population (45+ years). He further explained the goals of LASI.

“Economic Wellbeing of Elderly in India” – Prof. S.K. Mohanty

Prof. Mohanty presented the results on the economic wellbeing of elderlies including household consumption, income, debt, catastrophic health spending and subjective economic wellbeing. Employment, income and insurance were also measured at individual level. The findings showed that, overall, health expenditure accounts for largest share in the household consumption and elderly households are vulnerable to financial shock due to lack of universal security system, early retirement, large employment in informal sector and low pension coverage.

“Work, Retirement and Pension of Older Adults” - Prof. Aparajita Chattopadhyay

Prof. Chattopadhyay presented the results from the three domains of work amongst elderly - ever worked but currently not working, currently working and never worked. The findings showed that 36% of the elderly population is currently working in India, who are poor, less educated, living alone, not having social security. About two-thirds of the elderly who are currently working are in agriculture and/or allied activities. The social security among elderly

population is low in India. Only 9% of elderly receive work-related pension in India and only 6% have provident fund.

“Healthcare Access, Utilization and Health Insurance” - Dr. Dipti Govil

Dr. Govil presented the results related to healthcare access and utilization (recent visit to hospital - inpatient or outpatient - and health expenditure). Overall, 7 percent of older adults are hospitalized in last one year prior to the survey and it is increasing with age and higher among men in urban areas. The inpatient care by public and private facility indicate vast differences across states. The outpatient care in last one month prior to the survey in India is 26%, comparatively high in rural residents. The majority of older adults take outpatient care from private facility (64%) compared to 23% in public health facility. The main reasons for both inpatient and outpatient visit is non-communicable diseases. The overall health insurance coverage in India is 20.7% and it is higher among males. Among those who insured, the coverage of Rashtriya Swasthya Bima Yojana (RSBY) and allied scheme was highest and highest in rural areas. There is also huge inter-state-variations in the coverage of health insurance.

“Biomarkers and Health Status of Elderly” - Dr. Sarang Pedgaonkar

Dr. Pedgaonkar presented self-reported prevalence and measured health conditions. The age pattern of self-reported prevalence of major chronic diseases indicate a steady age gradient in the prevalence of chronic diseases such as cardiovascular diseases, hypertension, diabetes, bone/joint diseases, chronic lung diseases and neurological or psychiatric conditions. The measured prevalence of hypertension is 30% and it is higher among elderly (60+) living in urban areas and are undertreated. The overall prevalence of diabetes is 11.5% and with higher prevalence in urban areas. The body mass index (BMI) of India’s older population indicate half of older adults in India have normal BMI. The prevalence of underweight is higher among elderly population. On the contrary, older adults aged 45-59 years are more overweight/obese. Overall, the prevalence of high-risk waist hip ratio is much higher in India. The self-reported prevalence of bone/joint diseases increases with age and higher among females. The presence of multi-morbidity increases with age. Other morbidities reported are - eye problem, major depression, locomotor, visual impairment and any obstructive lung diseases.

The following are the key highlights and recommendations based on the presentations and discussion:

Main highlights of the presentations and discussion

- LASI provides the much needed scientific data for the strengthening of National Programme for Health Care of Elderly (NPHCE).
- It enables strengthening the existing social security and pension policies of Government of India for elderly.
- It helps in developing a more comprehensive national health policy framework for older persons and expanding the health care and social security programmes to cover all older adults and elderly persons in the country.

- Importance of gender differences need to be highlighted more.
- Disaggregated analysis by regions with respect to agro climatic zones, to see ageing pattern, disease pattern, etc., to see natural factors or others affecting morbidities.
- Household income: based on wealth flow theory, research may be conducted to see the wealth transfer among the households.
- Selective bias in data reporting needs to be controlled.
- Health expenditure accounts largest share of consumption basket of elderly households.
- Insurance coverage among elderly household remained low.
- Elderly households are vulnerable to financial shock due to lack of universal security system, early retirement, large employment in informal sector and low pension coverage.
- Working status of elderly: explore the timing of the division of the property as it is considered an important indicator on what will happen to the elderly.
- A higher proportion of older adults (45-59) have health insurance coverage than the elderly (60+).
- Link issue of health care expenditure data (private and public), and insurance with families with and without elderly.
- The age-associated rise in the prevalence of chronic health conditions is steady and consistent and more pronounced for CVD and lung disease.
- Dual burden (under weight and over weight/obesity) exist among elderly (60+).
- Around a quarter (23%) of the elderly have multi-morbidities as compared to older adults (13%).
- Over all in India, more than a third of elderly (37%) have low vision.
- Clinical observation can be included as they are more easy to carry out with less errors.

Plenary Session 6 **Psycho Socio-economic Impact of COVID-19**

Chair: Prof. Shalini Bharat

Discussant: Prof. Usha Ram

This situation was considered as an appropriate in tandem with the pandemic scenario. All the four speakers highlighted that how COVID-19 scenario has impacted the lives of young people, how gender plays an important role in research during COVID-19, what timely action needs to be taken during COVID-19 and lastly how the pandemic affected the economy of Indonesia.

“Consequences of the Pandemic for Young People; A Synthesis of What We Know” - Dr. Shireen Jejeebhoy

Dr. Shireen’s presentation highlighted how the unprecedented pandemic has effected some of the key domains of the young people’s life across culture - schooling, livelihoods and time use, child and early marriage, mental health, spurt in violence and sexual and reproductive health. She elaborated on some of the solutions to tackle this crisis among youth - empower youth

champion, they have stern resilience and huge initiatives during these times, engage community stakeholders and available platforms in different way; expand information and services delivery models, use digital opportunities, task sharing and shifting to support adolescent mental health and SRH needs. She also emphasized on gender disaggregated data.

“Covid-19: A Call to Action: A Time to Respond” - Dr. Saumya Rama Rao

Dr. Rao presented the data from India and Kenya to understand that in some countries the pandemic has wiped out the progress that has been made on poverty reduction in last 3 to 4 years. For 2022, the global growth rate is moderated at 3.8 percent with expectation that economic effects will linger for next 10 years. Effects of pandemic is far reaching on food security, livelihood, mental health and adolescent education. She emphasized on timely policy and programme actions based on the available data and evidences. Further, she highlighted immediate needs for social protection, food security, support for mental health and education, and people should not go hungry. She emphasized on the need for building better health system to withstand the shock. There is need for public and private partner for multi-sectoral responses.

“The Sex, Gender and COVID-19” - Dr. Ravi Verma

Dr. Verma explained the key objectives of the Project Tracker: Building the world largest data base of sex-disaggregated data on COVID-19. Tracker collates and access COVID-19 responses and advocates gender policy analysis to address the gender impacts of COVID-19. In India, sex disaggregated data reporting is not only incomplete but also inconsistent. India has not reported sex-disaggregated data on death since May 2020. It leads to a weak evidence base to guide effective and gender response interventions to tackle COVID-19.

“COVID-19 and Economy: How Indonesia Responded” - Dr. Aris Ananta

Dr. Ananta gave a detailed insight on what was the government of Indonesia’s response to COVID-19 crises. As a government response, a large amount of funding was provided to help the poor, and small and medium scale enterprises. Individual responses during early pandemic and shutdown revealed that 98 percent of people accepted current condition and 81 percent perceived happy family. On the obedience of practice of health protocols during early pandemic, it is reported that 95 percent wore mask outside the house, 77 percent went outside the house for urgent needs. In Indonesia, 71 percent were working and very few (2%) lost their jobs. Some of the recommendations from the experiences of Indonesia are- availability of cheap, effective and safe vaccine; restriction on population mobility; and use of online technology (going nowhere but being everywhere). Online technology helped raising household consumption and improving small and medium scale enterprises.

The following are the key highlights and recommendations based on the presentations and discussions:

Main highlights of the presentations and discussion

- The pandemic and the lockdown has affected almost all the domains of young people- schooling, livelihood, child/early marriage, mental health, spurt in violence, and sexual and reproductive health.
- Lockdown affected school services – no midday meal and no school health services, led to “online” platform for education, dropouts (more in girls), and induced child marriages.
- Due to pandemic more young people lost their jobs and females were twice more likely to lose jobs.
- Consequences for the young are huge: likely stalling if not overturning the progress made over the recent past in education, in access to health care, in empowering women and girls; and widening inequity between rich and poor, between boys and girls, and long lasting effects.
- Some suggestions for policy: empower youth champions, engage community stakeholder and platforms, expend information and service delivery models, use digital opportunities, task sharing and shifting to support adolescent mental and SRH services.
- In India, at least one member of 2/3rd of households had lost their jobs, many were aware of at least one social protection schemes, and that was PM Jan Dhan Yojana followed by dry food ration. Mental health was also affected; females were more affected than males, and socially and financially distressed.
- There are opportunities to collaborate (public and private sectors) and innovate for multi-sectoral responses.
- Call to action needs to be timely and build back better- strengthen data infrastructure and health systems.
- Lack/absence of consistent gender-disaggregated data leads to a weak evidence base to guide effective and gender-responsive interventions to tackle COVID-19.
- In India, gender-disaggregated data reporting is not only incomplete but also inconsistent. India, has not reported gender-disaggregated data on death since May 2020, and cases after September 2020.
- Recommendations should be framed for gender-responsive policies for COVID-19 based on policy review.
- People should be prepared with new emerging norms related to digital technology, including the use of robot and artificial intelligence.

The Technical Sessions

There were total eighteen technical sessions with different themes. All the papers presented in these sessions were of high quality and relevant to the objective of the seminar. The studies highlighted the impact of COVID-19 on different population dynamics. After the presentation of the papers in the Technical Sessions, discussions followed on methodology, analysis and findings. Queries raised by the participants were satisfactorily answered by the presenters. The chairperson and discussants also guided the presenters on how and what other factors/determinants may be explored to further investigate into the issues presented.

Technical session 1

1A: Estimation and Modelling of COVID-19 Pandemic

Chair: Prof. S.K. Singh

Discussant: Dr Anjali Radkar

The first paper - “COVID-19 Pandemic: Volume of Spread and Infections at Various Points of Time in Saudi Arabia” discussed about prevailing scenario of COVID-19 Pandemic in Saudi Arabia. Pandemic spread all over Saudi Arabia and covered all metropolitan cities and towns and rural areas. This threat was efficiently addressed by the government through intervention strategies of medical and legal dimensions consisting of financial packages to ensure smooth life and free vaccination to all even by the private sector.

The second paper - “Peak and Size of COVID-19 in India: Forecasting and Projections” used distinct statistical techniques to address the objectives. The author concluded that exponential model is the best fit over daily confirmed COVID-19 cases. The study showed that SARIMA model is suitable for projecting daily COVID-19 cases. The study successfully explored the epidemiological stage of COVID-19 in India.

The third paper - “A Comparative Study to Find a Suitable Model for an Improved Real-Time Monitoring of the Interventions to Contain COVID-19 Outbreak in the High Incidence States of India” tried to find a suitable model for an improved real-time (R_t) monitoring of the interventions x to contain COVID-19 outbreak in the high incidence states of India. They used R_{ins} (Cori et al.) and R_{case} (Wallinga and Teunis) to obtain the projections of R_t during lockdown and unlock phases. The authors recommended to use fine-tuned R_{ins} estimates over R_{case} to retrospectively assess the interventions.

The fourth paper – “Risk Assessment of Health Care Workers Exposed to COVID-19: Evolution of Data Collection Process and Actionable Analytics at a Tertiary Care Hospital in Mumbai” showed how *Google Form* helped to overcome the challenges of conventional methods of data collection during the pandemic. In the Google Form auto-filled electronic spreadsheet was made in which key points were made as mandatory inputs. The data collected through this mechanism helped to ward off unscientific fear and increased level of trust in PPE.

The fifth paper – “Estimation of Effective Reproduction Numbers for COVID-19 using Real-Time Bayesian Method for India and its States” presented was on estimation of effective reproduction numbers for COVID-19 using real-time Bayesian method for India and its states. The paper considered state level factors, i.e., number of tests performed per million population, human development index, good governance index, urbanisation and per capita health expenditure. Based on Bettencourt & Ribeiro’s approach, authors concluded that lockdown brought a decline in the reproduction number of India. Results too indicate that higher the serial interval, higher is the reproduction number.

1B: Health Care Utilization –I

Chair: Prof. Anil Kumar K

Discussant: Dr. T.R. Dilip

The first paper – “Effect of COVID-19 Pandemic on the Utilization of Public Health Care Services in Tamil Nadu” presented as a cross sectional descriptive study done in two Health Unit Divisions, revealed the following: there was a delay in availing the health services, outpatient services, AYUSH services and laboratory services; family planning and record maintenance were particularly affected; the utilization of all pregnancy related services has increased; and there was increase in the number of deliveries conducted at district hospital whereas those at PHC decreased, which can be attributed to increased referrals to district hospital.

The second study – “Measuring Health System Resilience in India in the context of COVID 19 Pandemic” analysed the Health Management Information System (HMIS) data on 15 indicators related to maternal and child health for the period 2019-20 and 2020-21 to create a resilience index so as to understand the capacity of the health systems of the States to tolerate change and keep functioning in crisis. The author concluded that the application of resilience index to health data for India will be helpful in strengthening the system of such states by adopting good practices of the better performing states.

The third paper – “Management Perspective of COVID-19 Patients from L1 till L3 level: A Prospective Observational Study” analysed various symptoms and the pattern of symptomatic and asymptomatic cases and their management in a Government Medical College. A total of 1019 patients who were declared as COVID-19 positive, out of which 61% were asymptomatic. Seventy one patients were referred due to critical illness, 40 were shifted to L1 hospital, 796 were discharged in satisfactory conditions and 122 died. Majority of patients had schooling for less than 10 years and low literacy was a challenge to make them understand the sensitivity of infection spread. Diabetes Mellitus was the most common morbidity associated with death.

The fourth paper – “Primary Healthcare Centres as the Pivots of Pandemic Mitigation: A Case Study of the Mohalla Clinics in NCT Delhi” assessed the role of Mohalla clinics in providing healthcare support during the pandemic to the COVID-19 as well as non-COVID

patients and various methods to improve the efficiency of health systems. The author used media reports, reports and directives by the government, telephonic interviews with doctors and staff of the clinics and patients visiting the clinics for arriving conclusions. She presented that the wide network of Mohalla Clinics has helped to sustain the healthcare delivery system in Delhi during the pandemic however, there is further scope to make more efficient use of the resources offered by these clinics during the pandemic and thereafter.

The fifth paper – “Bacterial Isolation from Respiratory Samples during SARS-CoV-2 Pandemic” was a cross sectional prospective study, which compared the distribution of bacterial pathogens in SARS-CoV-2 negative and positive patients. In SARS-CoV-2 positive patients with positive bacterial cultures (30), majority of isolates were Staphylococcus aureus (40%), followed by Escherichia coli (27%), Klebsiella pneumoniae (20%), and Pseudomonas aeruginosa (13%). The most common isolate from SARS-CoV-2 negative patients with positive bacterial culture was Acinetobacter baumannii (59%) followed by Staphylococcus aureus (17%), Klebsiella pneumoniae (13%), E. coli (7%) and Pseudomonas aeruginosa (4%).

1C: Social Policies during Pandemic

Chair: Prof. Kamala Gupta

Discussant: Dr T.S.Syamala

The first paper – “Impact of Pandemic on Indigenous Knowledge System of Van Gujjar Pastorals of Uttarakhand” showed that how the life of indigenous people was affected. The paper highlighted that government has ignored these marginalized community during the pandemic.

The second paper – “Birth Registration in India: A Study based on NFHS 2015-16” reflected on poor rates of birth registration in northern states of India and Uttar Pradesh being most poorly reported birth registration. Further, it showed that age, education and birth order of child was found to be associated with birth registration. Study further suggested that periodic awareness about the importance birth registration in low performing states and community based birth registration to improve the birth registration system in India.

The third paper – “Food Security in a Pandemic” focused on West Bengal. The study used WHO framework and reviewed the published works. Study particularly emphasized on discontinuation of mid-day meal programme. Pregnant women nutrition was hardly impacted due to the pandemic driven lockdown. Further, study highlighted the disruption in public distribution system (PDS), its impact on migrants, administrative bottlenecks in delivering food to poor during pandemic times. Author concluded by stressing importance of preparedness of any disasters and outbreaks.

The fourth paper – “Stigma against Infection: A Media Analysis of Coverage of COVID-19 in India” studied to examine the nature and causes of stigma by the various media reports.

Media content was analyzed to examine the stigma related to COVID-19. Study identified the three types of stigma, social stigma, psychological stigma and material stigma or economic stigma.

The fifth paper – “The Use of Smartphone and its Impact on Health and Well-being during Lockdown Period” analysed the primary data collected through online survey by using Google form using simple random sampling method. The results highlighted increased use of smartphones during the pandemic. More than half of the respondents reported health problems due to higher use of smartphone.

The sixth paper – “Media Professionals’ Working Conditions during COVID-19 in Mumbai: A Qualitative Investigation” pointed that media people have experienced both negative and positive experience during pandemic reporting. Media personal also experienced financial burden due to the lack of advertisement money. Author concluded that a strong need for policy level changes to the media organizations for effective working situation in pandemics.

Technical session 2

2A: Data Collection during Pandemic: Challenges and Opportunities

Chair: Dr S. Niranjana

Discussant: Dr L.K. Dwivedi

The first paper – “Measuring Excess Mortality during the COVID-19 Pandemic in India: The Need for Mobile Phone Surveys (MPS)” highlighted the approaches towards application of Mobile Phone Surveys (MPS) to measure the excess mortality during COVID-19 pandemic in India. In view of insufficient data on COVID-19 deaths due to pandemic through current methodologies of data collection (surveys – in person interview and CRS - registration), Mobile Phone Surveys may be used to assess the excess mortality due to COVID-19.

The second paper – “Is Digitalisation a Solution to Socio-Economic & Health Related Challenges of Future Pandemics?” highlighted the role of digitalisation in dealing with pandemic. The study used both secondary (NSSO) and primary data (interviews with 301 respondents through online platform were conducted) for primary data. Government interventions are required to make digital platform strong, transparent and reliable for future pandemics.

The third paper – “Tele-monitoring Continuity of Adolescents and Women's Nutrition Services Delivered by Women Collectives during the COVID-19 Lockdown: Results and Lessons from Swabhimaan Impact Evaluation Sites in Rural India” tried to understand the continuity of adolescents and women's nutrition services delivered by 11 women collectives during the COVID-19 Lockdown in selected site of rural Bihar, Chhattisgarh and Odisha. The survey revealed that tele-monitoring enabled timely situational awareness in low-technology areas.

The fourth paper – “Constitutional Implications of Panoptic and Synoptic Gaze on Population: An Inquiry into Data Collection during Pandemic” was done by the Westphalian state in collaboration with international financial institutions and big data firms. The datafication of humans in the wake of collecting and declaring health status and profiling of this automated data during COVID-19 has resulted into discrimination and disruption among minorities. The author said that there are implications of social policies guided by technological determinism in a situation where law making is unable to keep pace with the fourth industrial revolution.

The fifth paper – “Rapid Need Assessment for Accessibility of Digital Education during COVID-19 Pandemic” was a rapid need assessment, using multi-data collection techniques, for accessibility of digital education during COVID-19 pandemic, from KHUSHI Foundation. The results revealed that mixed mode surveys offer great flexibility in pandemic situation.

2B: Health Care Utilization –II

Chair: Prof. Sangamitra Acharya

Discussant: Prof. Chander Shekhar

The first paper – “Effect of COVID-19 Pandemic on Delivery Care Services: A Review” conducted PubMed database review. Authors observed overall negative effect of COVID-19 pandemic on delivery services – increase in institutional stillbirth rate, NMR, reduced access and provision of antenatal services, decline in ANC registrations and increased maternal deaths per month (estimated in LMICs).

The second paper – “Impact of Lockdown among Urban Residents in Kumbakonam” examined the impact of lockdown on urban dwellers. The author presented the impact on the mental health of the residents.

The third paper – “Impact of COVID-19 on TB Notifications in India” presented how real-time epidemic data on notified TB cases for 2019 and 2020 extracted from NI-KSHAY database and confirmed COVID-19 cases extracted from COVID-19 India API website showed the impact of COVID-19 on TB notifications.

The fourth paper – “Healthcare Seeking Behaviour during the COVID 19 Lockdown in an Urbanized Village in Delhi: A Cross Sectional Study” examined healthcare-seeking behaviour (requiring consultations, accessing alternate government health facility, accessing private clinics, opting for tele-consultation) of residents of an urbanised village during COVID-19 lockdown.

2C: Utilization of RCH Services during Pandemic: Collaborative Studies of IIPS and PRCs

Chair: Prof. R. Nagarajan

Discussant: Prof. Dhananjay W. Bansod

This technical session had total six papers dealing about COVID-19 impact on utilization of RCH services conducted by Population Research Centres in collaboration with IIPS.

The first paper – “Introduction and Profile of Surveyed Women for the IIPS-PRC Multi-Centric Collaborative Study on Utilization of RCH Services during COVID-19 Pandemic” provided the profile of the studied women and preliminary findings. The study used multi-stage sampling for quantitative data collection.

The second paper – “Utilization of Ante-Natal Care Services during COVID-19 Pandemic: Findings from IIPS-PRC Multi-Centric Collaborative Study” focused on utilization of ante-natal care during COVID-19 Pandemic. The study focused on pregnant women. Women from Assam and Bihar used most of the government facilities. Authors also emphasized on reasons for not using ANC due to COVID-19.

The third paper – “Utilization of Natal and Post-Natal Care during COVID-19 Pandemic: Findings from IIPS-PRC Multi-Centric Collaborative Study” focused on utilization of natal and post-natal care utilization during COVID-19 pandemic. It also assessed the percentage of women receiving JSY benefits.

The fourth paper – “Utilization of Family Planning Services during COVID-19 Pandemic: Findings from IIPS-PRC Multi-Centric Collaborative Study” presented results on utilization of family planning services during COVID-19 Pandemic in urban and rural areas. Side effects of family planning methods were also examined.

The fifth paper – “Utilization of Immunization Services during COVID-19 Pandemic: Findings from IIPS-PRC Multi-Centric Collaborative Study” was on utilization of immunization services during COVID-19 pandemic. Fifty nine percent of children were fully immunized and Guwahati had higher immunization than Patna.

The sixth paper – “Utilization of Child Health Care and ICDS Services during COVID-19 Pandemic: Findings from IIPS-PRC Multi-Centric Collaborative Study” showed that 26% of children fell ill during pandemic. Cough, cold and fever were commonly reported - slightly higher in rural than urban areas. The mean cost of treatment was around two thousand rupees. Fourteen percent of women reported that they faced problems to seek the treatment during pandemic and more difficulties in urban than rural. ASHA’s role was pivotal during pandemic to address the various problems.

Technical session 3

3A: Spatial Pattern of Pandemic

Chair: Prof. K.C. Das

Discussant: Prof. Aparajita Chattopadhyay

The first paper – “An Assessment of Covid-19 Strategies for Selected States of India: Lessons Learned for Future Pandemics” showed that pandemic is not uniformly spread across space and socio-economic groups, so there is a need to understand government strategies to tackle the COVID-19 pandemic. Socioeconomic vulnerability was found to be highest in Madhya Pradesh, epidemiological vulnerability highest in Telangana and demographic and socio-economic vulnerability highest in Nagaland. Health infrastructure in all three states were not at place as per the standard norms.

The second paper – “Epidemic Vulnerability Mapping based on Demographic and Household Census Data: A Case Study of Tiruchirappalli District, Tamil Nadu” highlighted that there is a need to understand rural-urban disparities in population vulnerable to a disease. Thus, recommended that identified hotspot areas should be prioritized by health policy implementers.

The third paper – “Geographical Analysis of COVID-19: Its Relationship with Socio-Economic Conditions in India” showed how the migrant workers were the most vulnerable to COVID-19. It focussed on livelihood strategies of marginal workers involved in informal sector and SC/ST migrant workers during COVID-19.

The fourth paper – “Migration and Informal Sector Scenarios during COVID-19 in Odisha: A Spatial Dimensions of Vulnerability Analysis” showed that there is no one-to-one association between socio-economic development and COVID-19 cases.

3B: Impact of COVID19 on Lives of People –I

Chair: Dr. Vishnu V. Rao

Discussant: Prof. Archana K. Roy

The first paper – “Impact of COVID-19 on Adolescent Health: Preliminary Evidences from Kerala” discussed how the pandemic has created distress and an adverse impact on health and mental health. Adults experienced restrictions on their day-to-day life, because of isolation and social distancing due to closure of schools for almost 1 year. Some of the suggestions included to reduce syllabus, psychosocial support and teacher training programmes.

The second paper – “Mental Health Status and Psychological Impact of the COVID-19 Pandemic on Frontline Nurses during the COVID-19 Pandemic Outbreak in India” was on 2 states- Kerala and Maharashtra. Through online survey (in English, Malayalam and Hindi), it was found that depression, anxiety and stress were common among nurses (25-35 years). While guidelines exist, there is need to conduct regular screening to understand the mental health of nurses. Policy recommendations: flexible work schedule, insurance to families of nurses, etc.

The Third paper – “Psycho-social Factors Associated with the Nationwide Lockdown in India during COVID-19 Pandemic” discussed how pandemic affected almost all countries. No country was prepared. Spatial analysis was conducted to investigate psychosocial factors. Tailored state specific interventions were recommended. Also customised interventions were suggested for those staying alone, experienced loss of job, etc.

The fourth paper – “COVID-19 Lockdown Obligatory: An Exploration on Public Perspective in Suburban Region of Northern Tamil Nadu” explored public perspective through telephonic interviews. It was observed that good governance is needed to reduce stress and economic issues amongst the population. Mapping and listing of the vulnerable population were suggested to ensure them the basic supplies.

The fifth paper – “Prevalence of Mental Health Issue during the COVID-19 Pandemic: A Systematic Review and Meta-Analysis” discussed how COVID-19 associated with mental health issues, affected communication, caused their inability to use proper mental health care facilities, etc. The study also found that having pet or child can cause less stress, those who follow rules are less depressed. Mental health issues were triggered by lockdown.

3C: Morbidity and Mortality during Pandemic and Nonpandemic Period

Chair: Prof. H. Lhungdim

Discussant: Dr. Harihar Sahoo

The first paper –“Multimorbidity and Severity of COVID-19 Disease”, is a systematic review and a meta-analysis of hazard ratio/rates and odds ratio from peer-reviewed articles to understand the risk or effect of multimorbidity (13 diseases) on the severity of COVID-19 disease. The risk of severity for COVID-19 disease is the highest for degenerative diseases such as coronary heart disease and cardiovascular disease followed by heart disease, chronic kidney disease and coronary artery disease. Also, diabetes mellitus and hypertension show high risk for severity of COVID-19 disease. The study unravels that the prevalence of non-communicable diseases in adult and old ages increases the severity of COVID-19 disease more than that of comorbidity.

The second paper –“Is Childhood Mortality Higher in Urban Poor than in Rural India?” found a decreasing trend in infant mortality and under-five mortality both urban poor and rural India during this period (NFHS 3& NFHS 4). The economic inequalities respect to under-five mortality is higher in urban poor than in rural India. Hazard regression suggested that higher risk of child mortality in urban areas, due to poverty, low female literacy, low coverage antenatal care and safe delivery in the community. The health program should be initiatives a major role to reducing infant and under-five mortality rates for both urban poor and rural India.

The third paper – “Vulnerability Factors of Pre-existing Under-Five Childhood Morbidity in Bangladesh, Amidst the COVID-19 pandemic” used Bangladesh-DHS 2017-18 data. The results showed that male children were 1.20 times more likely to experience

comorbidity compared to their female counterparts. Children aged one year were 1.58 and 2.20 times more likely to experience single morbidity and comorbidity compared to children aged four years. Daily hygiene habits of individuals and continuum of care through health facilities may prove effective mitigation strategy for under-five children during and after the COVID-19 pandemic.

The fourth paper – “Examining the Association between Socio- Economic Components and COVID-19 Fatalities in India”, is based on secondary data that have been taken from different sources. This study finds that the distribution of the COVID-19 confirmed cases and deaths were uneven across India. The selected demographic and socio-economic components, including total population, urban population, poverty, and income are the key factors in regulating overall casualties of COVID-19 in India.

Technical session 4

4A: Migration and Pandemic

Chair: Prof. D.P. Singh

Discussant: Dr. Anil Chandran

The first paper – “Impact of Covid-19 on Lives of Children from Migrant Families in India” was an assessment from Govt. of Jharkhand. It examined COVID-19 impact on the livelihood of migrants and nutritional status of their children. The study showed that children were engaged in household activities which affected their education. Thus, the recommendation of the study was to create awareness about existing government scheme amongst migrants also.

The second paper – “Health and Safety of Migrant Workers with Challenges of COVID-19 Outbreak in Textile Manufacturing Industries” showed the preliminary and cross-sectional study covering 409 informal migrant workers in textile manufacturing industries in urban regions of Surat district. The results showed how many had knowledge, practiced usage of PPE kits and COVID-19 appropriate practices. Migrant workers are also prone to chemicals resulting in health hazards. The study recommended the need to design and implement sensitive policies concerning migrants working in textile industries.

The third paper – “The Future Aspirations and Socio - Economic Profile of the Return Migrants During Pandemic to Sonitpur District of Assam” showed results from a telephonic survey. In order to avoid any social unrest and reinstating the return migrants in workforce, understanding the socio – economic profile is important. Majority of the migrants returned were young (21-34 years) and unmarried males. It was also explored if they provided a window of opportunity for the local economy to capitalize.

The fourth paper – “Elderly Migration in India: Pattern, Characteristics, Reasons for Migration and Systematic Review of COVID-19 Impacts on Elderly Migrants” was a systematic review. Various online sources such as Google Scholar, Jstor, Researchgate,

PubMed, etc., were used. In terms of total numbers, the elderly migrated population is less than the young ones. The COVID-19 makes both positive and negative impact on all age group. The migration at old age is determined by later-life movement. Better understanding of elderly migration of any particular region is helpful for policy makers and programme implementations in various aspects of development.

4B: Impact of COVID-19 on Lives of People –II

Chair: Prof. Chander Shekhar

Discussant: Prof. S.K. Mohanty

The first paper – “Impact of COVID-19 Lockdown on Air Quality Index of Kolkata City” highlighted that lockdown caused India to curtail its oil consumption which resulted in ecological benefits. Emissions of carbon-dioxide, nitrogen dioxide, particulate matter, etc., in all countries have reduced. The results show that after February-March, everywhere there is a steep or gentle decline and AQI is good to satisfactory. Except for ozone, others (above mentioned polluting gases) have reduced in Kolkata Municipal Corporation Area.

The second paper – “Impact of COVID-19 Lockdown on Lives and Livelihood of Household Workers: A Cross-Sectional Study in Murshidabad District, West Bengal” discussed how the pandemic negatively affected informal sector workers like household industry workers and their loss of livelihood. Socio economic and living condition of household workers were badly affected by the COVID-19 lockdown. Recommendations are that microfinancing schemes with low interest and easy access to NABARD would be helpful.

The third paper – “Covid-19 Pandemic: A Qualitative Study of the Lived Experiences of Empty-Nest Elderly in Kashmir” discussed about the support and care required by elderly in Kashmir. It studied the lived experiences of empty nest elderly in Kashmir during the COVID-19 pandemic through telephonic and face-to-face interviews. Main challenges were health issues, social isolation, limited access to pension, monetary services, etc. Incomprehensible information through TV or radio lead to confusion, anxiety and fear. Elderly were unable to switch to digital socialisation platforms. Coping mechanisms involved engagement in daily household chores, dependence on religion, etc. Social support from neighbours was an important coping mechanism.

The fourth paper – “Disparity in Accessing Online Education during the COVID-19 Pandemic” discussed how the pandemic forced all educational institutes to shift to online mode. This was an online survey amongst post-graduates of Bodoland University through a Google form and from teachers through informal discussions. Study shows that everyone had smart phones and around 49% had either desktop or laptop. By social group, SCs had lowest percentage of access to device. Students whose parents had better occupation and education show positive correlation with laptop/computers.

4C: Nutritional Status of Children and Adolescents: Observations from CNNS

Chair: Dr. Robert Johnston

Discussant: Dr Praween Agrawal

The first paper – “Analysis of Data Quality of Birth-Weight Reporting: Evidence from Large Scale Surveys and HMIS Statistics” aims to analyse the quality of birth weight data collected in the large-scale surveys (NFHS & CNNS) and reported in the HMIS and its implications on low birth weight (LBW) estimations. In all the three surveys, heaping of birth weight at digit ending with 0 or 5 is observed. This paper identified the possible biases in missing and reported data (heaping) in surveys and under-coverage and other issues in HMIS. There is a need for a comprehensive method of data collection of birth weight to get an accurate prevalence of low birth weight.

The second paper – “Status and Correlates of Non-Communicable Diseases among Children and Adolescents in Slum and Non-Slum Areas of India’s Four Metropolitan Cities”, used CNNS survey for estimating the prevalence of non-communicable diseases among children. Overall, children from richer households had a greater likelihood of suffering from one or the other non-communicable disease irrespective of their residence in slum or non-slum areas. Increased focus on nutrition education across class groups and screening of children for early detection can help in prevention and control of non-communicable diseases in childhood.

The third paper – “Status and Correlates of Micronutrients Deficiencies in Slum and Non-Slum Areas of India’s Four Metropolitan Cities: Investigation from CNNS” showed, at least seven out of 10 children suffered from some kind of micronutrient deficiency. Anaemia was prevalent among all children but at different levels among various age-groups. Deficiencies of iron, folate and vitamin A was higher among children in slums whereas deficiencies of vitamins B12 and D and zinc were more prevalent among non-slum children. The differential estimates by slum/non-slum residence and by age-groups calls for a targeted approach to address micronutrient deficiencies among the children and adolescents. Nutrition education not only for slum residents but also for those from non-slum areas is an urgent need to check the spread of micronutrient deficiencies.

The fourth paper – “Anthropometric Assessment of Children and Adolescents in Slum and Non-Slum Areas of India’s Four Metropolitan Cities” revealed that there is not much difference observed in the Composite Index of Anthropometric Failure (CIAF) among slum and non-slums in both 0-4 and 5-9 age children. Though the percentage of underweight (0-4) children is higher in slum areas and for 5-9 age children, stunting is more prevalent in non-slum areas. The results indicated that mother’s higher education is negatively related to CIAF in non-slum areas for 0-4 year children and for both slums and non-slum for 5-9 year children. Poor children are more likely to have higher CIAF as compared to non-poor children, in both slum and non-slums.

Technical session 5

5A: Ageing, Health and Living Arrangements

Chair: Prof. T.V. Sekhar

Discussant: Dr A.G.Khan

The first paper – “What Predicts to Elderly in Seeking Healthcare Utilization Across Public Private Institutions in India: Evidence from NSSO” used the Andersen’s Health Behaviour Model. The researcher tried to analyse how predisposing, enabling and need factors are associated with the health care utilisation. It establishes that apart from the financial factors, socio-demographic as well as need factors are equally important in decision making concerning health care utilisation. It is recommended that (a) public hospitals need to be equipped with state-of-the-art technologies to ensure better treatment, especially in the case of critical illness and surgical needs, and (b) public health infrastructure need to be strengthened for catering to the needs of grey population.

The second paper – “Does Socio-Economic Inequality Exist in One-Person Households among Older Adults in India? Evidence from National Family Health Survey, 2015-16” showed that older adults who are poor, women, never married, and living in rural areas need greater care and attention with a stronger public support system. This research provides insights to identify the older adults living in One-Person Household and their socio-economic inequality which have significant policy implications.

The third paper – “Association of Socioeconomic and Health- Related Factors with Preference for Separate Living among Older Adults: A Cross-Sectional Study in India” used Building Knowledge base on Population Ageing in India (BKPAI). Nearly 21% elderly are living alone or living with their spouse due to various reasons. Researcher suggests that attention needs to be paid on the demand of specialized care and health services among the older adults living both in co-residential arrangements and separate ones.

The fourth paper – “Living Arrangements and Treatment-Seeking Behaviour among Elderly with Locomotor Disability in India” compared the data (76th round of NSSO) of older population (60-79 years) from two states, Kerala and Uttar Pradesh. In both the states older population with locomotor disability are living alone because of the increased life expectancy. Kerala has advanced healthcare facilities. Recommendation was implementation of interventions for better health programs, awareness and medical care at the state level.

The fifth paper – “Health Issues, Health Care Utilization and Health Care Expenditure among Elderly in India: Thematic Review of Literature” was a review paper which was done by using 72 research articles. In India, about 80% of older adults have at least one chronic disease and 77% have at least two. Obesity is on rise due to high-fat-content of food and no physical exercise. Musculoskeletal disorders, disability, immobility and mental illness are also

prevalent. Lack of awareness and gender disparity impact health care utilization by elderly. The conclusion was that public policy needs to emphasize vulnerabilities faced in old age, caused by an interlocking system of inequality, with special impetus on gender.

The sixth paper - “Working Women and Eldercare: A Qualitative Perspective” gave insights on profiles of the respondents (caregivers and care-providers), care perception (provision of food, providing necessities, helping them with daily chores and companionship), daily routine, challenges and coping mechanisms. The study highlighted a disturbing picture regarding the physical health of the overburdened care providers amid their own deteriorating physical and emotional health and wellbeing, the caregivers met the demands of care and support required by the elderly. Though the relationship among family members was good, the physically exhausted and stressed caregivers unknowingly resorted to elderly abuse and neglect.

5B: Reproductive and Child Health

Chair: Prof. B. Paswan

Discussant: Prof. Murali Dhar

The first paper – “Teenage Pregnancy in North India: A Comparative Analysis” used the retrieved data from NFHS-4 (2015-16) for three states of Bihar, Uttar Pradesh and Jharkhand. The findings highlighted that least developed states of Bihar and Jharkhand have the highest rate of (12%) teenage pregnancy, which is of course higher than the national average of 8%. One of the crucial factors for teenage frequency in these states are the unmet need of family planning. Sex education in schools and colleges may be a good initiative for creating awareness among adolescents.

The second paper - “Examining the Effect of Household Wealth and Migration Status on Utilization of Family Planning among Women in India, 2015-16” examined utilisation of family planning among migrants by focusing on the method of contraceptive measures used by them. Findings from the logistic model reveals higher odds of traditional method use among the poor migrants compared to non-poor migrants.

The third paper – “A Cross-sectional Study to Assess Reproductive and Child Health Profile of Working Women Residing in Urban Slums of Gwalior City” revealed that 34% of women had sufficient birth spacing, 23% had received sufficient antenatal care services during pregnancy, 70% children were malnourished and 35% of children were fully immunized. Overall results showed underuse of RCH services.

The fourth paper – “Criticality of Sex Education as Unintended Adolescent Pregnancies Shoots Amidst COVID-19 Crisis” revealed that spiralled issues of low income and pandemic have led child marriages and other vulnerabilities such as trafficking and sexual abuse.

The fifth paper – “Hysterectomy among Women in South India” focused on the repercussion of hysterectomy and associated morbidities among women sampled in NFHS-4 (2015-16). The findings of the study revealed that 50% women went to private hospitals and had suffered with excessive bleeding. Only a few, merely of 7%, are covered by insurance.

The sixth paper – “Sterilization in India: A Comparative Analysis of Low and High Fertility States” focused on the dominant use of sterilization over mixed methods and spacing methods in India. The findings suggested that educated and elite women are at higher risk of sterilization.

5C: Population Characteristics and Components

Chair: Prof. A. Shaban

Discussant: Dr. Sarang Pedgaonkar

The first paper – “Disease Burden and Healthcare Utilization in the North Eastern Region of India” shows results from 75th round of NSSO. The North-Eastern region of India still faces the undeniable burden of infectious diseases (29 per 1000) followed by non-communicable. Alongside the disease burden, the healthcare utilisation of the population mostly incline towards the private healthcare over the public healthcare. Government focusing on the needs as per the region is highly recommended to reduce untreated morbidities, health inequalities as well as to better the public health utilisation.

The second paper – “Trend and Pattern of Internal Migration in India, 1971-2011” indicates that the mobility of the Indian population has gradually increased over the years and there is a gradual feminization of migration in the country. Migration matrices of inter-censal periods (1981-91, 1991-01, 2001-11) have been constructed to study the intensity of migration flows between states. It is seen that more than one-third of all inter-censal internal migrants have originated from Bihar and Uttar Pradesh. A ratio of 1 indicates an equal number of out-migrants and in-migrants. A ratio above one indicates a larger number of out-migrants, and a value less than one indicates a larger number of in-migrants.

The third paper – “Factors Determining Out-migration from Bihar and Uttar Pradesh, 1981-2011: A Quasi-Poisson Regression” shows that in 1991, about three-fourth of total migration from Bihar migrated to just seven states of India. The trend continued in 2001 and 2011. West Bengal was the most preferred destination for migrants from Bihar in 1991. In recent years, a higher proportion has migrated to the NCT of Delhi. Maharashtra and Delhi have remained the preferred destination of migrants from Uttar Pradesh. The positive effect is highest in the case of migrant stock for the migrants from Bihar, indicating that states with larger migrant stock attract further migrants. Net state domestic product, a proxy for the economic performance of a state, has the highest positive impact on the choice of destination among migrants from Uttar Pradesh.

The fourth paper – “Living Conditions and Quality of Life of Transgender in Kurnool District, Andhra Pradesh” showed that transgender faced discrimination at every aspect of their life. Many participants reported- they were abused by the society members, lacked access to quality health care and no specific public health cover was provided for them. Besides, they survive on begging and dancing. They also experience poor physical quality of life, poor psychological health and unhappy relationship with society members. Recommendation: provide special health insurance coverage for transgender and allocate appropriate fund for supporting their livelihood.

Technical session 6

6A: Non-communicable Diseases

Chair: Prof. A. Pandey

Discussant: Dr. Manoj Alagarajan

The first paper – “Does Changing Life-Style and other Health-Related Issues has any Effect on the Non-Communicable Diseases among Men and Women in India?” focused on the risk factors of non-communicable diseases and the repercussion of lifestyle factors among Indian population.

The second paper – “Health Belief Model based Community Education Interventions on Breast Cancer Awareness and Practices among Women: A Study in Low Socio-Economic Area of Mumbai” was based on a baseline and endline survey of 410 women in their age group of 18-55 years. The study aimed at knowledge of breast cancer among women. The findings reveal that self-examination practices increased from 3% to 65% among women and 42% women went for clinical breast-examination after intervention.

The third paper – “Mapping the Hotspots of Lifestyle Diseases Using Geospatial Techniques: A Case Study of Kerala” highlighted the high risk of lifestyle based diseases such as diabetes, hypertension, cancer, heart diseases, etc. with identification of geographical hotspots using NFHS data 2019-20 and Geoinformatics. The study revealed that blood sugar among women slightly decreased from 8.7% to 8.3% in Kerala. The southern Kerala is more vulnerable to lifestyle diseases in comparison to northern Kerala.

The fourth paper – “Anthropometric Risk Factors of Non-Communicable Diseases among the Elderly Population of India: Evidence from LASI Wave-1” explored the association between non-communicable morbidity with body mass index (BMI) or waist-to-hip ratio (WHR) using multivariate linear model over LASI data. The findings revealed that persons has odds of 2 and 1.63 for obesity and WHR, respectively.

6B: Health and Nutrition

Chair: Prof. Sayeed Unisa

Discussant: Dr. Praveen Pathak

The first paper – “Age-wise Growth Pattern of Stunted Indian Children and their Correlates: Evidence from NFHS-4 (2015-16)” explored certain fundamental issues related to child growth, and highlighted risk factors of stunting, based on household wealth quintile, mother’s education, child’s weight at birth, mother’s height and child anaemia. Among all the stunted children, Uttar Pradesh has the highest share followed by Bihar, Madhya Pradesh and Maharashtra and these states have more than 50% share in all stunted children. The researcher suggested to improve mother’s education along with the policies and programmes for improving maternal and child nutrition.

The second paper – “Association between Gender Inequality and Maternal, Neonatal and Child Health: A Pooled Analysis of Data from 160 Countries” highlighted that higher the Gender Inequality Index (GII), higher the mortality, morbidity and lesser the service coverage of mothers and children in a country. Association maintained across the regions (especially low and low middle-income countries). There was significant association between GII and MCH indicators.

The third paper – “Effect of Maternal Height on the Risk of Caesarean Section in Singleton Birth: Evidence from The Large Scale Survey in India” used NFHS-4 data. The prominent finding of logistic regression was that with one-centimetre increase in the height chances of caesarean section decreases with 0.2 percent. The findings suggest that counselling to taller stature pregnant women should emphasise it as a positive sign for successive vaginal delivery, and indirectly may lower the caesarean section rate.

The fourth paper – “Age-appropriate Immunization Scenario of Children in Jharkhand” focused on possible factors affecting age appropriate immunization among children. The factors such as education, delivery in health institutions have significant impact on immunization coverage hence need to be focused. According to the researcher, focus should not only be on introducing a programme but proper implementation and governing it by maintaining its standards and efficiency.

The fifth paper – “Effect of Maternal Nutrition and Socio-Economic Factors on Child Nutrition in India” used NFHS-4 data. More than 80% and 50% of the total mothers were severely/moderately stunted and wasted respectively. Underweight among children is the most significant child growth failure in India (70%). More than 50% of the total children were stunted or wasted. Children from South India had comparatively better nutrition status than those from other regions. Only 34% and 36% of the total children born to underweight mothers had normal height for the age and weight for the height respectively.

The sixth paper – “Understanding the Impact of COVID-19 on Adolescents (10-18 years) in India” was the review of 50 studies (34 global and 16 from India). This presentation showed that adolescents are also vulnerable to COVID-19 pandemic. It also focused on actions taken by adolescent-specific organizations (NGOs) and government. There were negative consequences on adolescents in this period of COVID-19 such as, mid-day meal was discontinued, loss of friendship network and higher incidences of dropouts. It is suggested that research is needed for assessing long-term impact of pandemic on adolescents.

6C: Gender Issues During Pandemic

Chair: Prof. Vibhuti Patel

Discussant: Dr Renu Kapoor

The first paper – “The Gender Question of Pandemic: Work, Leisure and Mental Health Status of Employed Women in Kerala” focused on the working women, who indulged in work from home due to the lockdown protocols in several organizations. The study unveiled that during work from home hours, women were also made involved in the household chores such as cooking, cleaning, and caring for children.

The second paper – “COVID-19 Pandemic and Changing Mental Health of Women: A Case Study of Bandel Area, Hooghly District, West Bengal” focused on the changing mental health of middle-class women due to the issues and their struggle to overcome them. The results showed a number of cases of domestic violence, suicide, murder, sexual violence, social exclusion, unhealthy lifestyle, stressful working condition, gender discrimination, etc. Changing socioeconomic status and health issues are the major causes of this type of situation. But most of the women become able to stand strong and overcome the situation as well.

The third paper – “Story of Two Viruses Within and Beyond Pandemic” studied the impact of COVID-19 and lockdown on human and economic progress of a country and questioned and challenged the many years progress on reducing poverty and inequality. The paper also discussed the effects on various aspects, particularly the informal employment, wage and income, working hours and consumption losses, based on the evidence from the CMIE, ILO and other secondary data sources. The overall results of COVID-19 and lockdown provides a new experience and collective endeavour to tackle the present situation.

The fourth paper – “ Impact of COVID-19 Pandemic on Women’s Work Participation in India” was based on secondary data analysis using R Studio. According to payroll data collected from the Employees’ Provident Fund Organisation (EPFO), 669,914 people joined the formal workforce in August, and only 133,872 of them, or just 19.98%, were females— down marginally from 20.49% in July and 21.11% in June. The EPFO latest monthly data showed a sharp decline from 2019-20 when women’s participation in formal work was almost 23%. Industry experts and economists, include a general dearth of jobs; discrimination against women in a patriarchal society, and the lack of a family support system for urban women.

The fifth paper –“ Impact of the COVID-19 Pandemic: A Study on Divorced Mothers and Mothers Undergoing Divorce in Kottayam District, Kerala” focused to understand the challenges faced by the divorced mothers and mothers currently going through divorce process during the COVID-19 pandemic situation. From the key supports received by the divorced mothers in COVID-19 pandemic, it is visible that in each case the strength and weakness of divorced mothers are associated with the education, employment, social support, and involvement of family members, friends and other personalities in the divorce process and after divorce.

The sixth paper –“Experiencing COVID-19: A Case Study of Gender Divide among Informal Sector Employment in Idukki District, Kerala” found that the impacts are more gendered in nature, i.e, the women workers tend to be economically as well as mentally affected than their male counterparts. Loss of employment along with increased burden of housework and caring responsibilities during lockdown had financial as well as psychological impacts on the women folk.

Annexure II: Number of participants attended the virtual seminar

Inaugural & Plenary sessions

Plenary Sessions	Session Title	No. of participants
	Inaugural session	257
1	Major Finding of National Family Health Survey -5	257
2	Estimation and Projection of Pandemic	59
3	Census Estimates for 2021: Methods and Rationale	186
4	Public Health in the Era of Pandemic	55
5	Longitudinal Ageing Study in India (LASI): Overview and Major Findings	125
6	Psycho Socio-economic Impact of COVID19	87

Technical sessions

Technical Session	No. of participants	Technical Session	No. of participants	Technical Session	No. of participants
1A	73	3A	54	5A	38
1B	49	3B	42	5B	41
1C	40	3C	31	5C	35
TOTAL	162		127		114
2A	47	4A	27	6A	28
2B	26	4B	26	6B	28
2C	67	4C	35	6C	28
TOTAL	140		88		84

Number of papers selected and presented

Number of paper	Plenary session	Technical session
Selected	-	94
Presented	28	88

Officials of MoHFW, Government of India

Mrs. Sandhya Krishnamurthy, Director General Statistics

Ms. Nivedita Gupta, Chief Director Statistics

ANNEXURE III: IIPS International Seminar 2021
on
Pandemic and Population Dynamics
18-20 March 2021

Detailed Programme (Indian Standard Time)

Sr.No	Date/Time	Session Title
1	18 th March 2021 11.00 AM	Inaugural Session Welcome –Prof. K.S. James About the Seminar –Prof. Sayeed Unisa Inaugural Address – Smt. Sandhya Krishnamurthy, Director General, MoHFW Vote of Thanks - Prof. R. Nagarajan
2	18 th March 11.30 AM-1 PM	Plenary Session 1 Major Finding of National Family Health Survey -5 Chair: Prof. K.S. James Discussant: Dr. Dharendra Kumar Rapporteur: Dr. Y. Vaidehi
		Title/Authors <ol style="list-style-type: none"> 1. Tracking Progress in Maternal and Child Health Situations in India; Evidence from 22 States/UTs S.K. Singh 2. Fertility and Family Planning: Opportunities and Challenges Chander Shekhar 3. Nutritional Transition in India Laxmikant Dwivedi 4. Adult Health and NCDs Sarang Pedgaonkar 5. Women's Empowerment and Domestic Violence Hemkothang Lhungdim
3	18 th March 2-3.30 PM	Technical Session -1A Estimation and Modelling of COVID19 Pandemic Chair: Prof. S.K. Singh Discussant: Dr. Anjali Radkar Rapporteur: Dr. Dipti Govil
		Title/Authors <ol style="list-style-type: none"> 1. COVID-19 Pandemic: Volume of Spread and Infections at Various Points Time in Saudi Arabia Asharaf Abdul Salam, Rshood Al-Khraif, Dilip T.R., Ibrahim Elsegaey 2. The Peak and Size of COVID-19 in India

		<p>Suryakant Yadav, Pawan Kumar Yadav, Neha Yadav, Chandra Kant Yadav</p> <p>3. A Comparative Study to Find a Suitable Model for an Improved Real-Time Monitoring of the Interventions to Contain COVID-19 Outbreak in the High Incidence States of India</p> <p>Amrutha, G.S., Hemkothang Lhungdim</p> <p>4. Risk Assessment of Health Care Workers Exposed to COVID-19: Evolution of Data Collection Process and Actionable Analytics at a Tertiary Care Hospital in Mumbai</p> <p>Satish Chandra Mishra</p> <p>5. Estimation of Effective Reproduction Numbers for COVID-19 using Real-Time Bayesian Method for India and its States</p> <p>Rishabh Tyagi, Laxmi Kant Dwivedi, Ashutosh Sanzgiri</p>
4	18 th March 2-3.30 PM	<p>Technical Session -1B Health Care Utilization –I Chair: Prof. Anil Kumar K Discussant: Dr. T.R. Dilip Rapporteur: Dr. Sarang Pedgaonkar</p> <p>Title/Authors</p> <p>1. Effect of COVID-19 Pandemic on the Utilization of Public Health Care Services in Tamil Nadu Sankarapandian, V. Saravanakumar</p> <p>2. Measuring Health System Resilience in India in the Context of COVID-19 Pandemic William Joe, Abhishek Kumar, Narendra Patel</p> <p>3. Management Perspective of COVID-19 Patients from L1 till L3 level: A Prospective Observational Study Anand Bihari, Madhumita Singh, Ankit Srivastav</p> <p>4. Primary Healthcare Centres as the Pivots of Pandemic Mitigation: A Case Study of the Mohalla Clinics in NCT Sonali Smriti Biswas</p> <p>5. Bacterial Isolation from Respiratory Samples during SARS CoV-2 Pandemic Satender Saraswat, D.P. Singh, Swati Sarswat</p>
5	18 th March 2-3.30 PM	<p>Technical Session -1C Social Policies during Pandemic Chair: Prof. Kamala Gupta Discussant: Dr. T.S. Syamala Rapporteur: Dr. Suresh Jungari</p> <p>Title/Author</p>

		<ol style="list-style-type: none"> 1. Stigma Against infection: A Media Analysis of Coverage of COVID-19 in India Arun Kumar Sharma, Bhavna Joshi, Pradip Swarnakar 2. Ethnography of Van Gujjar Pastorals of Uttarakhand and Impact of Pandemic on Indigenous Knowledge System Iftakhar Hussain 3. Birth Registration in India: A Study based on NFHS-4, 2015-16 Krishna Kumar, Nandita Saikia 4. Food Security in a Pandemic Debayanti Bhowmick 5. The Use of Smartphone and its Impact on Health and Well-being during Lockdown Period Mohd Salim 6. Media Professionals' Working Conditions during COVID-19 in Mumbai: A Qualitative Investigation Pragati Ubale, Pravin Kokane, Daivata Patil, Lahu Vitthal Rathod, Ravina Ranjan
6	18 th March 3.45-5.15 PM	<p>Technical Session -2A Data Collection during Pandemic: Challenges and Opportunities Chair: Dr. S. Niranjan Discussant: Dr. L.K. Dwivedi Rapporteur: Dr. Dipti Govil</p> <p>Title/Authors</p> <ol style="list-style-type: none"> 1. Measuring Excess Mortality during the COVID-19 Pandemic in India: The Need for Mobile Phone Surveys (MPS) Jayanta Kumar Basu 2. Is Digitalisation a Solution to Socio-Economic and Health Related Challenges of Future Pandemics? Anjali Sharma 3. Tele-monitoring Continuity of Adolescents and Women's Nutrition Services Delivered by Women Collectives during the COVID-19 Lockdown: Results and Lessons from Swabhimaan Impact Evaluation Sites in Rural India Neha Abraham, Monica Shrivastav 4. Constitutional Implications of Panoptic and Synoptic Gaze on Population: An Inquiry into Data Collection during Pandemic Gopal Krishna

		<p>5. Rapid Need Assessment for Accessibility of Digital Education during COVID-19 Pandemic.</p> <p>Shilpa Jain</p>
7	18 th March 3.45-5.15 PM	<p>Technical Session -2B Health Care Utilization -II Chair: Prof. Sangamitra Acharya Discussant: Prof. Chander Shekhar Rapporteur: Dr. Sarang Pedgaonkar</p> <p>Title/ Authors</p> <ol style="list-style-type: none"> 1. Effect of COVID-19 Pandemic on Delivery Care Services: A Review Akansha Aggarwal, Khan Amir Maroof 2. Impact of Lockdown among Urban Residents in Kumbakonam Pugalenthi, T. 3. Impact of COVID-19 on TB Notifications in India Javeed Golandaj 4. Healthcare Seeking Behaviour during the COVI-19 Lockdown in an Urbanized Village in Delhi: A Cross-Sectional Study Aritrik Das
8	18 th March 3.45-5.15 PM	<p>Technical Session -2C Utilization of RCH Services during Pandemic: Collaborative Studies of IIPS and PRCs Chair: Prof. R. Nagarajan Discussant: Prof. Dhananjay W. Bansod Rapporteur: Dr. Suresh Jungari</p> <p>Title/ Authors</p> <ol style="list-style-type: none"> 1. Introduction and Profile of Surveyed Women for The IIPS-PRC Multi-Centric Collaborative Study on Utilization of RCH Services during COVID-19 Pandemic Usha Ram 2. Utilization of Ante-Natal Care Services during COVID-19 Pandemic: Findings from IIPS-PRC Multi-Centric Collaborative Study Bashir Ahmed Bhat 3. Utilization of Natal and Post-Natal Care during COVID-19 Pandemic: Findings from IIPS-PRC Multi-Centric Collaborative Study Shriprasad, H.

		<p>4. Utilization of Family Planning Services during COVID-19 Pandemic: Findings from IIPS-PRC Multi-Centric Collaborative Study Depak Das</p> <p>5. Utilization of Immunization Services during COVID-19 Pandemic: Findings from IIPS-PRC Multi-Centric Collaborative Study Dilip Kumar</p> <p>6. Utilization of Child Health Care and ICDS Services during COVID-19 Pandemic: Findings from IIPS-PRC Multi-Centric Collaborative Study Jyoti Hallad</p>
9	18 th March 5.30- 7 PM	<p>Plenary Session 2: Estimation and Projection of Pandemic Chair: Prof. C.M. Pandey Discussant: Prof. U.S. Mishra Rapporteur: Dr. Laxmi Kant Dwivedi</p> <p>Title/ Authors</p> <p>1. COVID-19 Identification through Mobile Apps and Artificial Intelligence Arni S.R. Srinivasa Rao</p> <p>2. Covid Forecasting - Extending SEIR Model with Machine Learning (AI) Modit Jain</p> <p>3. Models for COVID-19 Spread in India Gautam Menon</p> <p>4. Estimation of a District-level Vulnerability Index for the Management of and Response to the COVID-19 Epidemic in India Rajib Acharya</p>
10	19 th March 11.30 AM-1 PM	<p>Plenary Session 3 Census Estimates for 2021: Methods and Rationale Chair: Dr. Pronab Sen Co-chair: Dr. Vivek Joshi Rapporteur: Dr. Harihar Sahoo</p> <p>Panel Members</p> <p>Prof. Amitabh Kundu Prof. P.M. Kulkarni Prof. Arvind Pandey Dr. K.M. Sathyanarayana Dr. A.A. Jayachandran</p>

11	19 th March 2-3.30 PM	<p>Technical Session -3A Spatial Pattern of Pandemic Chair: Prof. K.C. Das Discussant: Prof. Aparajita Chattopadhyay Rapporteur: Dr. Kaushalendra Kumar</p> <p>Title/ Authors</p> <ol style="list-style-type: none"> 1. An Assessment of Covid-19 Strategies for Selected States of India: Lessons Learned for Future Pandemics Saif Nihal, Anjali Sharma 2. Epidemic Vulnerability Mapping based on Demographic and Household Census Data: A Case Study of Tiruchirappalli District, Tamil Nadu Prakash, K., R. Jegankumar 3. Geographical Analysis of COVID-19: Its Relationship with Socio- Economic Conditions in India Gyanendra Singh Chauhan 4. Migration and Informal Sector Scenarios during COVID-19 in Odisha: A Spatial Dimensions of Vulnerability Analysis Siba Sankar Sahu, Sarmistha Singh 5. Spatial Pattern of COVID-19 Cases and Mortality Rate in Odisha: A Regional Analysis (2020-21) Laxmikanta Rana, Siba Sankar Sahu
12	19 th March 2-3.30 PM	<p>Technical Session -3B Impact of COVID19 on lives of People -I Chair: Dr. Vishnu V. Rao Discussant: Prof. Archana K Roy Rapporteur: Dr. Reshmi R.S.</p> <p>Title/ Authors</p> <ol style="list-style-type: none"> 1. Impact of COVID-19 on Adolescent Health: Preliminary Evidences from Kerala Lekha D. Bhat, K.R. Nayar, Bindhya Vijayan, Sumalatha, B.S. 2. Mental Health Status and Psychological Impact of the Covid-19 Pandemic on Frontline Nurses during the COVID-19 Pandemic Outbreak in India Jeetendra Yadav 3. Psycho-social Factors Associated with the Nationwide Lockdown in India during COVID-19 Pandemic Bhaskar Tiwary, Nilima, Siddharth Kaushik, Piyush K. Pandey

		<p>4. COVID-19 Lockdown Obligatory: An Exploration on Public's Perspective in Suburban Region of Northern Tamil Nadu Nisha, B., Rajayamini. R., Ruma Dutta, Gomathy P., Timsi Jain</p> <p>5. Prevalence of Mental Health Issue during the Covid-19 Pandemic: A systematic Review and Meta- Analysis Anandi Shukla</p>
13	19 th March 2-3.30 PM	<p>Technical Session -3C Morbidity and Mortality during Pandemic and Non-pandemic Period Chair: Prof. H. Lhungdim Discussant: Dr. Harihar Sahoo Rapporteur: Dr. Md Illias Sheik</p> <p>Title/ Authors</p> <p>1. Multimorbidity and Severity of COVID-19 Disease Rashid Khan, Pawan Kumar Yadav, Suryakant Yadav</p> <p>2. Is Childhood Mortality Higher in Urban Poor than in Rural India? Ujjwal Das</p> <p>3. Examining the Association between Socio- Economic Components and COVID-19 Fatalities in India Sadaf, Khursheed Ahmad Khan</p> <p>4. Vulnerability Factors of Pre-existing Under-Five Childhood Morbidity in Bangladesh, Amidst the COVID-19 pandemic Ronak Paul, Rashmi</p> <p>5. Is Communication Key to Good Health? Understanding the Depressive Symptoms, and Associated Morbidities during Pandemic Rinshu Dwivedi, Sindhu Vasu</p>
14	19 th March 3.45-5.15 PM	<p>Technical Session -4A Migration and Pandemic Chair: Prof. D.P. Singh Discussant: Dr. Anil Chandran Rapporteur: Dr. Kaushalendra Kumar</p> <p>Title/ Authors</p> <p>1. Elderly Migration in India: Pattern, Characteristics, Reasons for Migration and Systematic Review of COVID-19 Impacts on Elderly Migrants Vasim Ahamad</p>

		<p>2. The Future Aspirations and Socio-Economic Profile of the Return Migrants during Pandemic to Sonitpur District of Assam Girimallika Borah</p> <p>3. Impact of COVID-19 on the Migration and Remittances in India Dimpal Dekaraja</p> <p>4. Health and Safety of Migrant Workers with Challenges of COVID-19 Outbreak in Textile Manufacturing Industries Bharati Maurya</p> <p>5. Impact of Covid-19 on Lives of Children from Migrant Families in India Farrukh Shah, Jatinder Bir Singh</p>
15	19 th March 3.45-5.15 PM	<p>Technical Session -4B Impact of COVID19 on Lives of People -II Chair: Prof. Chander Shekar Discussant: Prof. S.K. Mohanty Rapporteur: Dr. Reshmi R.S.</p> <p>Title/ Authors</p> <p>1. Impact of COVID-19 Lockdown on Air Quality Index of Kolkata City. Utkarsha, Rajeev Ranjan Shrivastava</p> <p>2. Impact of COVID-19 Lockdown on Lives and Livelihood of Household Workers: A Cross-Sectional Study in Murshidabad District, West Bengal Margubur Rahaman</p> <p>3. Covid-19 Pandemic: A Qualitative Study of the Lived Experiences of Empty-Nest Elderly in Kashmir Shamikhah Hamid, Shazia Manzoor</p> <p>4. Implications of the COVID-19 Pandemic on Future Population Growth in India</p> <p>5. Kakoli Das, Saswata Ghosh, Arup Kumar Das Disparity in Accessing Online Education during the COVID-19 Pandemic Pralip Kumar Narzary</p>
16	19 th March 3.45-5.15 PM	<p>Technical Session -4C Nutritional Status of Children and Adolescents: Observations from CNNS Chair: Dr. Robert Johnston Discussant: Dr. Praween Agrawal Rapporteur: Dr. Md Illias Sheik</p> <p>Title/ Authors</p>

		<ol style="list-style-type: none"> 1. Analysis of Data Quality of Birth-Weight Reporting: Evidence from Large Scale Surveys and HMIS Statistics. Unisa, S., Anand, E., Dhillon, P., Sahoo, H., Robert, J., Agrawal, P, 2. Status and Correlates of Non-Communicable Diseases among Children and Adolescents in Slum and Non-Slum Areas of India's Four Metropolitan Cities Sahoo, H., Dhillon, P., Anand, E., Srivastava, A., Agrawal P., Robert J., Unisa, S. 3. Status and Correlates of Micronutrients Deficiencies in Slum and Non-Slum Areas of India's Four Metropolitan Cities: Investigation from CNNS Dhillon, P., Sahoo, H., Usman, M., Srivastava, A., Agrawal, P., Robert, J., Unisa, S. 4. Anthropometric Assessment of Children and Adolescents in Slum and Non-Slum Areas of India's Four Metropolitan Cities Sahoo, H., Srivastava, A., Anand, E., Dhillon, P., Agrawal, P., Robert, J., Unisa, S.
17	19 th March 5.30-7 PM	<p>Plenary Session 4 Public Health in the Era of Pandemic Chair: Prof. H.P. Sachdeva Discussant: Dr Vani Sethi Rapporteur: Dr. T.R. Dilip</p> <p>Title/ Authors</p> <ol style="list-style-type: none"> 1. Public Health in COVID-19: Success and Failure Nilima Kshirasagar 2. Challenges in Managing Chronic Diseases at the Time of Pandemic Sanghmitra Pati 3. Impact of COVID-19 Pandemic on Cancer Diagnosis and Care Ramana Kumar Agnihotram 4. SARS-CoV-2 Variants R.R. Gangakhedker
18	20 th March 11.30 AM-1 PM	<p>Plenary Session 5 Longitudinal Ageing Study in India (LASI): Overview and Major Findings Chair: Prof. S. Siva Raju Discussant: Prof. Abusaleh Shariff Rapporteur: Dr. Selva Mani</p> <p>Title/ Authors</p>

		<ol style="list-style-type: none"> 1. LASI - Scope, Relevance and Methodology Prof. T.V. Sekher 2. Economic Dimensions of Ageing in India Prof. S.K. Mohanty 3. Work, Retirement and Pension of Older Indians Prof. Aparajita Chattopadhyay 4. Health Care Access and Utilization of elderly Dr. Dipti Govil 5. Biomarkers and Health Status of Elderly Dr. Sarang Pedgaonkar
19	20 th March 2-3.30 PM	<p>Technical Session -5A Ageing, Health and Living Arrangements Chair: Prof. T.V. Sekhar Discussant: Dr. A.G. Khan Rapporteur: Sunil Sarode and Ms. Shalini Sen</p> <p>Title/ Authors</p> <ol style="list-style-type: none"> 1. What Predicts to Elderly in Seeking Healthcare Utilization across Public Private Institutions In India: Evidence from NSSO Jhumki Kundu, Dhananjay W. Bansood 2. Does Socio-Economic Inequality Exist in One-Person Household Among Older Adults in India? Evidence from National Family Health Survey, 2015-16 Shobhit Srivastava 3. Association of Socioeconomic and Health Related Factors with Preference for Separate Living among Older Adults: A Cross-Sectional Study in India Muhammad T., Arun Balachandran, Shobhit Srivastava 4. Living Arrangements and Treatment-Seeking Behaviour among Elderly with Locomotor Disability in India Poulami Barman 5. Health Issues, Health Care Utilization and Health Care Expenditure among Elderly in India: Thematic Review of Literature Harihar Sahoo, Dipti Govil, K.S. James, Ravi D. Prasad 6. Working Women and Eldercare: A Qualitative Perspective Dipti Govil, Harihar Sahoo, K.S. James, Biswabandita
20	20 th March 2-3.30 PM	<p>Technical Session -5B Reproductive and Child Health Chair: Prof. B. Paswan Discussant: Prof. Murali Dhar</p>

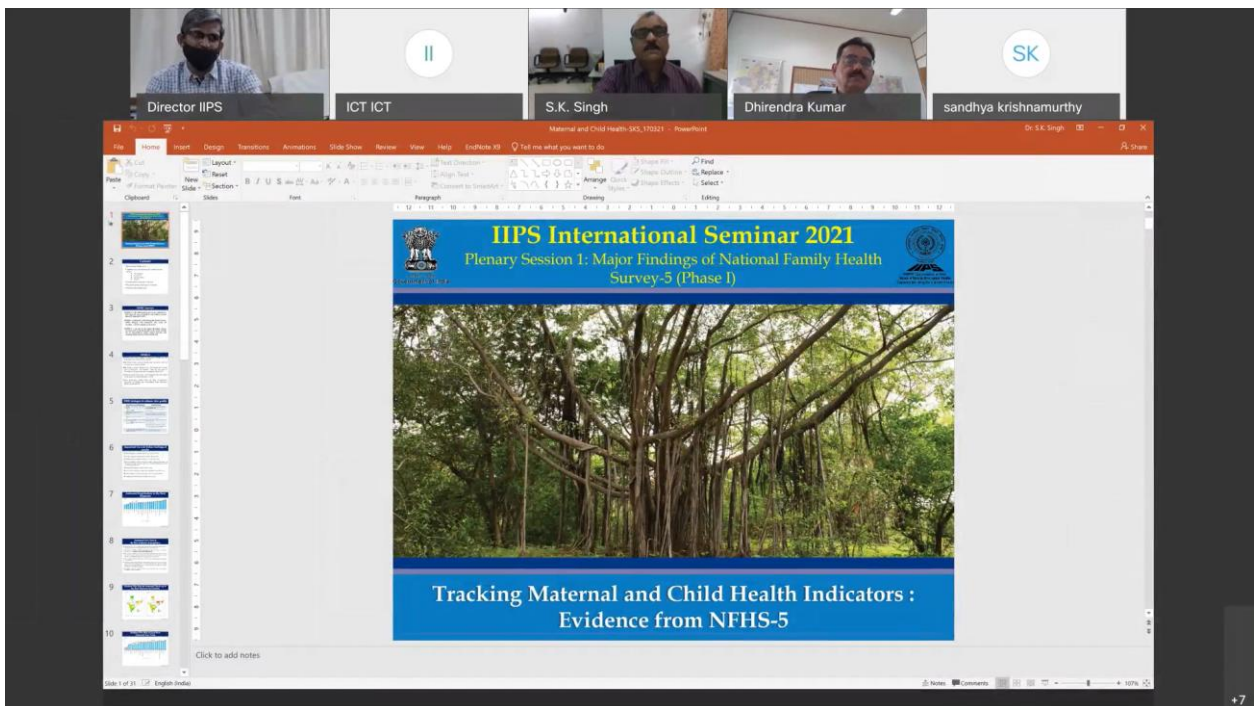
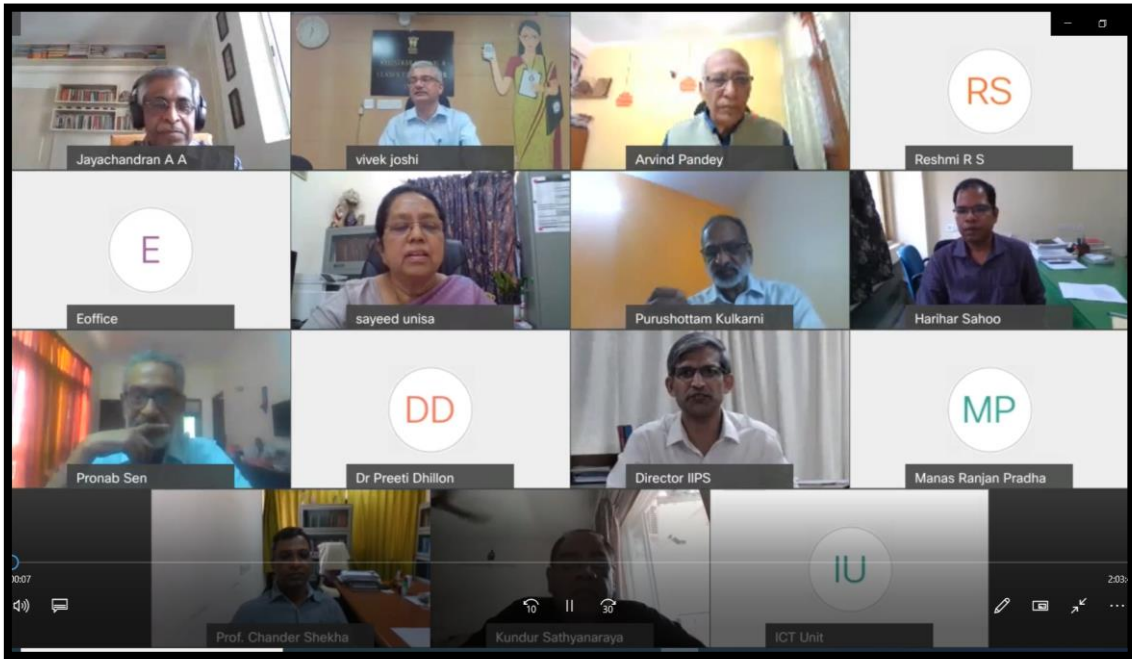
		<p>Rapporteur: Dr. Suryakant Yadav</p> <p>Title/ Authors</p> <ol style="list-style-type: none"> 1. Teenage Pregnancy in North India: A Comparative Analysis Aditi B. Prasad 2. Examining the Effect of Household Wealth and Migration Status on Utilization of Family Planning among Women in India, 2015-16 Manoj Dakua 3. A Cross Sectional Study to Assess Reproductive and Child Health Profile of Working Women Residing in Urban Slums of Gwalior City Swati Saraswat, Satender Saraswat 4. Criticality of Sex Education as Unintended Adolescent Pregnancies Shoots Amidst COVID-19 Crisis Monisha Israni 5. Hysterectomy among Women in South India Yusra, N., Anjana, A. 6. Sterilization in India: A Comparative Analysis of 7. Low and High Fertility State Umenthala Srikanth Reddy
21	20 th March 2-3.30 PM	<p>Technical Session -5C</p> <p>Population Characteristics and Components</p> <p>Chair: Prof. A. Shaban</p> <p>Discussant: Dr. Sarang Pedgaonkar</p> <p>Rapporteur: Dr. Preeti Dhillon</p> <p>Title/ Authors</p> <ol style="list-style-type: none"> 1. Disease Burden and Healthcare Utilization in the North Eastern Region of India Manali Swargiary, Hem Lhungdim 2. Fertility and Family Planning Differentials among Social Groups in India Dewaram Abhiman Nagdeve, Prashant Bhimrao Dongardive 3. Trend and Pattern of Internal Migration in India 1971-2011 R. Lusome, R.B. Bhagat 4. Factors Determining Out-migration from Bihar and Uttar Pradesh, 1981-2011: A Quasi-Poisson Regression Minnu Malieckal, R. Lusome 5. Living Conditions and Quality of Life of Transgender in Kurnool District, Andhra Pradesh Venkata Raja Malla, Reshmi, R.S.
22	20 th March	Technical Session -6A





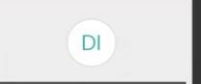
	3.45-5.15 PM	<p>Non-communicable Diseases Chair: Prof. A. Pandey Discussant: Dr. Manoj Alagarajan Rapporteur: Dr. Suryakant Yadav</p> <p>Title/ Authors</p> <ol style="list-style-type: none"> 1. Does Changing Life-Style and Other Health-Related Issues has Any Effect on the Non-Communicable Diseases among Men and Women In India? Anuj Singh, Nilesh Yadav 2. Measuring and Decomposing Inequalities in Mental Disorders among Elderly in Five Low- and Middle-Income Countries: Evidence from WHO-SAGE, Wave 1 Nasim Ahamed Mondal, R. Nagarajan, Balhasan Ali 3. Health Belief Model based Community Education Interventions on Breast Cancer Awareness and Practices among Women: A Study in Low Socio-Economic Area of Mumbai Ranjan Kumar Prusty, Shahina Begum, Anushree Patil, D.D. Naik 4. Mapping The Hotspots of Lifestyle Diseases Using Geospatial Techniques: A Case Study of Kerala Libina Rs, Venkita Surya D, Apsara G 5. Anthropometric Risk Factors of Non-Communicable Diseases among the Elderly Population of India: Evidence from LASI Wave-1 Mahadev Bramhankar, Nand Lal Mishra, Gursimran Singh Rana
23	20 th March 3.45-5.15 PM	<p>Technical Session -6B Health and Nutrition Chair: Prof. Sayeed Unisa Discussant: Dr. Praveen Pathak Rapporteur: - Mr. Sunil Sarode and Ms. Shalini Sen</p> <p>Title/ Authors</p> <ol style="list-style-type: none"> 1. Effect of Maternal Height on the Risk of Caesarean Section in Singleton Birth: Evidence from the Large-Scale Survey in India P. Marbaniang, Hemkothang Lungdim 2. Age-wise Growth Pattern of Stunted Indian Children and their Correlates: Evidence from NFHS-4 (2015-16) Diksha Rani, Hemkothang Lungdim

		<p>3. Association between Gender Inequality and Maternal, Neonatal and Child Health: A Pooled Analysis of Data from 160 Countries Yuvaraj Krishnamoorthy, Karthika Ganesh, Sathish Rajaa, Sharan Murali</p> <p>4. Effect of Maternal Nutrition and Socio-Economic Factors on Child Nutrition in India Aparna, B., P. Mohanachandran Nair</p> <p>5. Age-appropriate Immunization Scenario of Children in Jharkhand Bishwajeet Besra</p> <p>6. Understanding the Impact of COVID -19 on Adolescents (10-18 years) in India Somila Surabhi</p>
24	20 th March 3.45-5.15 PM	<p>Technical Session -6C Gender Issues During Pandemic Chair: Prof. Vibhuti Patel Discussant: Dr. Renu Kapoor Rapporteur: Dr. Preeti Dhillon</p> <p>Title/ Authors</p> <p>1. The Gender Question of Pandemic: Work, Leisure and Mental Health Status of Employed Women in Kerala Shabin B.N., Fathimath Mahitha. K., Arya S. Kumar., Asha, S.P., Tony Francis</p> <p>2. COVID-19 Pandemic and Changing Mental Health of Women: A Case Study of Bandel Area, Hooghly District, West Bengal Uma Bhattacharya</p> <p>3. Story of Two Viruses Within and Beyond Pandemic Neelam Katiyar, K.S. Niranjan</p> <p>4. Impact of COVID-19 Pandemic on Women’s Work Participation in India Sujata Verma, K.S. Niranjan</p> <p>5. Impact of the COVID-19 Pandemic: A Study on Divorced Mothers and Mothers Undergoing Divorce in Kottayam District, Kerala Christin Mathews, Joyce Jestin</p> <p>6. Experiencing COVID-19: A Case Study of Gender Divide among Informal Sector Employment in Idukki District, Kerala Alinda George, Dhanya Mohan</p>
25	20 th March	Plenary Session 6

	5.30-7 PM	<p>Psycho Socio-economic Impact of COVID19 Chair: Prof. Shalini Bharat Discussant: Prof. Usha Ram Rapporteur: Dr. Manoj Alagarajan</p> <p>Title/ Authors</p> <ol style="list-style-type: none"> 1. Consequences of the Pandemic for Young People: A Synthesis of What We Know Dr Shireen J. Jejeebhoy 2. COVID-19: A Call to Action, A Time to Respond Dr. Saumya Rama Rao 3. The Sex, Gender and COVID-19 Dr. Ravi Verma 4. COVID-19 and Economy: How Indonesia Responded Prof. Aris Ananta
26	20 th March 7-7.30 PM	<p>Valedictory Session Welcome: Prof. Sayeed Unisa Report of Seminar sessions: Prof. R. Nagarajan Valedictory Address: Ms. Nivedita Gupta, Chief Director (Stats) Way Forward: Prof. K.S. James Vote of Thanks: Dr. Manoj Alagarajan</p>

ANNEXURE IV: Photo Gallery









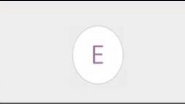
				
T.V. Sekher	Siva Raju	Randagasmay Nagarajan	sayeed unisa	Director IIPS

IIPS INTERNATIONAL SEMINAR 2021
ON
PANDEMIC AND POPULATION DYNAMICS
PLENARY SESSION 5


LONGITUDINAL AGEING STUDY IN INDIA (LASI)

LASI - Scope, Relevance and Methodology

				
Kundur Sathyanarayana	Pronab Sen	Director IIPS	vivek joshi	Eoffice

Demographic estimation for 2021 due to the deferment of the Census 2021 round to a later date



Sathyanarayana
UNFPA, DPRK

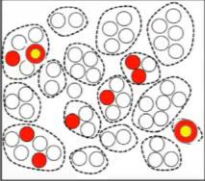
Jointly hosted by IIPS & ORGI
March 19, 2021

Prof. CM Pandey Arni Rao Udaya Mishra sayeed unisa RAJIB ACHARYA



Plenary Session 2
 Estimation and Projection of Pandemic

IIPS International Seminar 2021
Pandemic and Population Dynamics
(March 18, 2021)

COVID-19 Identification through Mobile Apps and Artificial Intelligence



Arni S.R. Srinivasa Rao

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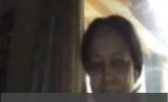



E HS SU RA

Eoffice nilima kshirsagar HPS Sachdev sayeed unisa Ramanakumar Agnihotra

**Public health in era of pandemic-
 Successes and failures
 IIPS 19.3.2021**

Dr.Mrs.Nilima.A.Kshirsagar,

MD,PhD,FNAMS,FAMS,FACCP,USA,FRCP,UK
 Emeritus Scientist, Chairperson SAG BMS ,Member SAB,ICMR
 Member DTAB,Chairperson FDC Subcommittee,Govt of India
 Member SAC DNDi,ACSoMP WHO,Drug Statistics Methodology WHO,Secretary General CD IUPHAR
 former National Chair Clinical Pharmacology ICMR
 Ag ViceChancellor MUHS,Dean Director Medical Education Research SGSMC KEM ,Dean TNMC,BYLN ,Dean Director
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 SAUMYA RAMARAO	 Shalini Bharat	 Shireen Jejeebhoy	 Usha Ram	 IIPS Director
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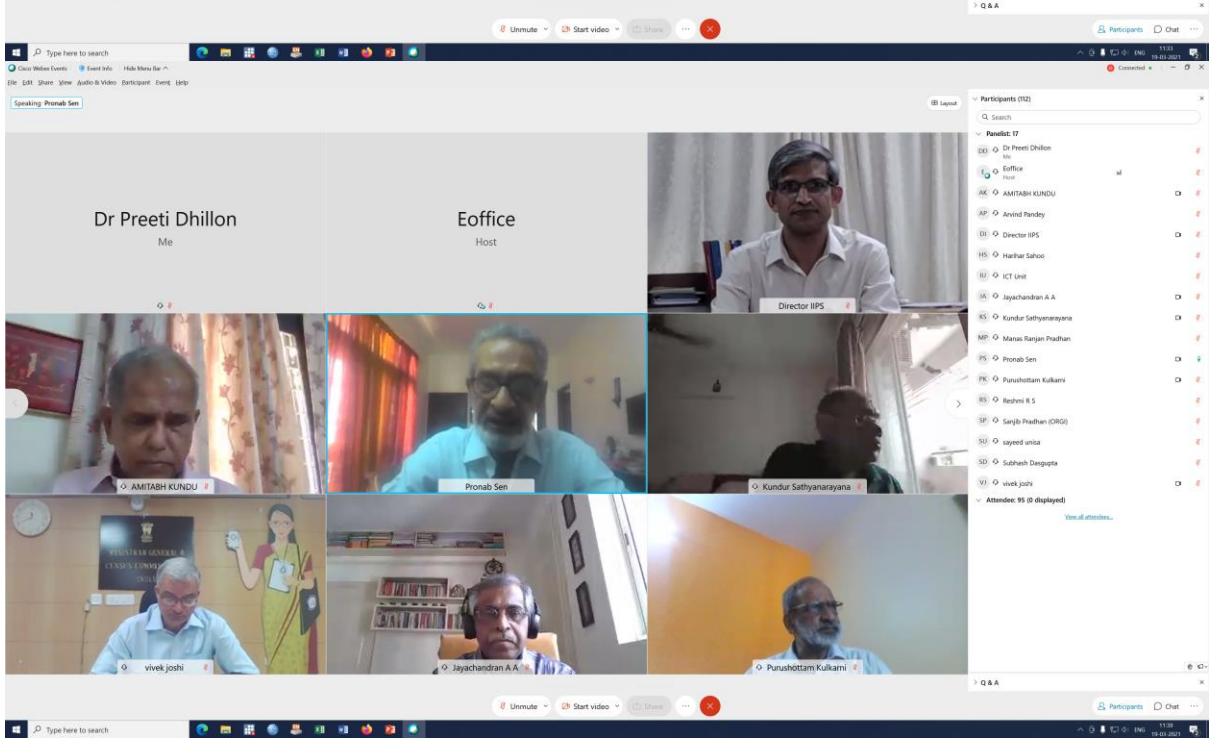
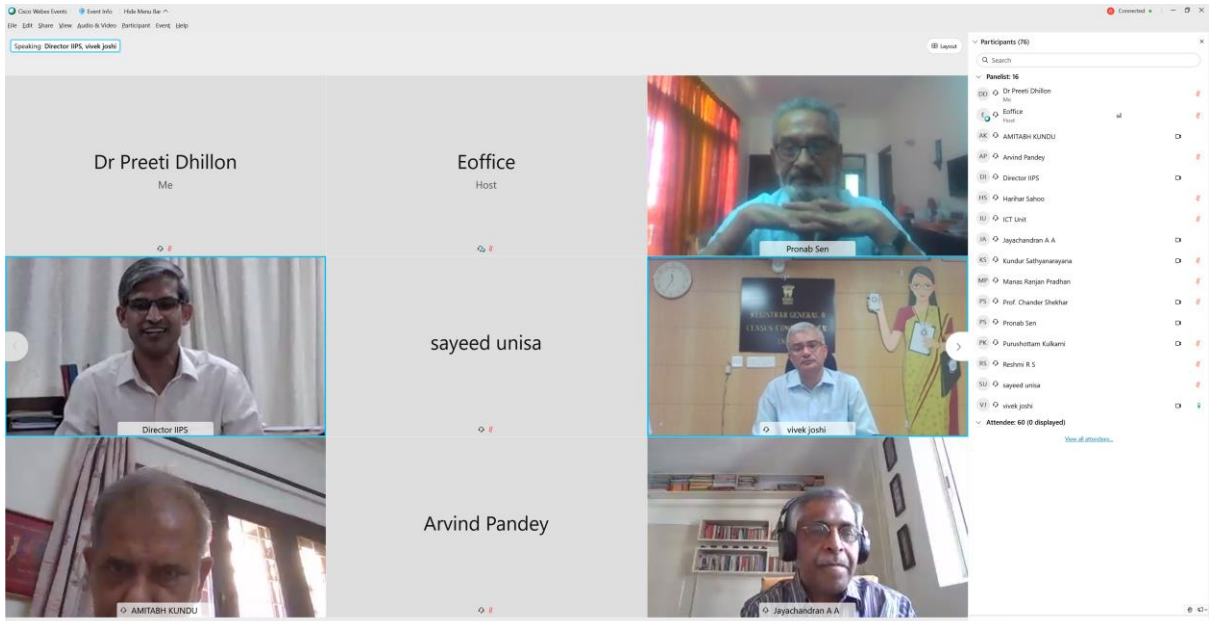
COVID19 Pandemic: A Call to Action, A Time to Respond

IIPS Seminar
March 18-20, 2021

Saumya RamaRao
Senior Associate

Collaborators: Rajib Acharya, Mukta Girdi, Sangram Patel, Niranjan Saggurti, KG Santhya, Francis Zavier, Karen Austrian, Tim Abuya, Beth Kangwana, Faith Mbushi, Eva Muluve, Dan Mwangi





Zoom Meeting Interface (Top):

- Meeting Title: **Speaking: Pronab Sen**
- Participants: 109
- Panelist: 10
- Visible Participants: Dr. Preeti Dhillon, Eoffice, Prof. Chander Shekhar, AMITABH KUNDU, Anind Pandey, Director IPS, Harsh Sahoo, ICT Unit, Jajachandran A A, Kundur Sathyanarayana, Manoj Ranjan Pradhan, Pronab Sen, Punottham Kulkarni, Roshni R S, Sanjiv Pradhan (ORGO), sayed amia, Subhash Dasgupta, vivek joshi.
- Attendee: 91 (8 displayed)

Zoom Meeting Interface (Bottom):

- Meeting Title: **Speaking: Dhananjay Bansod**
- Participants: 10
- Panelist: 10
- Visible Participants: Dr. Preeti Dhillon, eoffice.tech, Jyoti Hallad, Bashir Bhat, Dhananjay Bansod, Dilip Kumar, Dipak DAS, Dr. Dilip Kumar Katta, Manoj Ranjan Pradhan, Rangasamy Nagarajan, Shripaard H, Suresh Jangari, Usha Ram.
- Attendee: 37 (8 displayed)
- Visible Attendee: Dr. Suresh Sharma

