

OP-11 **CLIMATE CHANGE AND HEALTH: A SOCIAL DETERMINANTS APPROACH TO MALNUTRITION AMONG MIGRANT CHILDREN**

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**Background** Climate change as social determinant threatens human health through its effect on undernutrition and food insecurity. In Karnataka, climate change is dramatically affecting agriculture after the year 2000 by declining trend of rainfall and rise in temperature, resulting in decrease in yield and increase in cost of cultivation. At the same time, poverty and indebtedness

are the most important factors leading to migration, and are associated with malnutrition and poor health status. The present study investigates climate change as a cause of migration and as determinant of health and nutrition of migrant children.

**Methods** Between June and September 2015, we conducted semi-structured interviews with mothers of migrant families from two construction colonies, having children aged 0–19 years and attending migrant labourer school in Bangalore urban. Of a purposeful sample of 77 households, all mothers were interviewed and 140 children underwent anthropometric examination. Primary data were causes of migration, mother and children nutritional outcome, gender, social class, socio-demographic factors, illness profile, information on maternal & child health, and access to health services. Informed consent from the respondent was obtained.

**Findings** About 74% of the migrant households live below the poverty line. Of the total, 96% belongs to either Scheduled Castes (19%), or Muslim (21%), Other Backward Castes (19%) and Schedules Tribes (6%). Rural-to-urban is the main migration pattern (94%), with 75% of the migrants originating from North-East Karnataka. Availability of only agricultural work in rural areas is the main driver of migration as perceived by most of the respondents. More in detail, the expressed causes of migration are: (i) for agricultural land holders (70%): no, insufficient or too much rain affecting agricultural production, irregular income because of seasonal agricultural work, financial shortage for cultivation; (ii) for non-agricultural land holders (5%): low paid agri-labourer work, few income opportunities, high temperature disallowing pleasant living, floods due to heavy rains; (iii) for non-land holders (25%): no land and no other income opportunities, having to pay back debt borrowed for marriage, and extreme hot and cold.

Using WHO measures, child nutrition status was measured:

- (a) Weight-for-height: <-3sd: 8%; <-2sd: 9%; >-2sd: 83%
- (b) Weight-for-age: <-3sd: 18%; <-2sd: 21.1%; >-2sd: 60.9%
- (c) Height-for-age: <-3sd: 22.1%; <-2sd: 25%; >-2sd: 52.9%
- (d) BMI-for-age: <-3sd: 5%; <-2sd: 9.3%; >-2sd: 85.7%

Of the mothers, 24.7% was underweight. Child malnutrition was significantly higher among children with underweight mothers. Boys are more malnourished than girls, and younger ones more than older; 65% of children die at birth.

Fever, cold and body-ache were reported among the major health issues in last 30 days. Few respondents reported to have pneumonia and viral flu in children. Utilisation of government health services was low because of restricted access, limited time and non-availability of caregivers.

**Discussion** Our study reveals that climate change has a direct impact on nutrition and migration. Nutritional insecurity at the household level due to climatic variation was the main cause of migration. There is clear evidence that environment and health are connected. Climate change is a public health challenge in India, contributing to the increase in disease burden and mortality among poor. Nevertheless, the health system is not responsive to the needs of migrants. Migrants are perceived as aliens and socially distanced when accessing health services. The observed nutritional outcomes confirm the vulnerability of migrant mothers and children.

**Recommendations** A socially inclusive health policy for migrants could overcome the present situation. Targeted health interventions and outreach components are necessary to design for the internal migrants taking into account the vulnerability of their women and children.

At a broader level, it is essential to reduce the vulnerabilities to climate change at the policy and programme level, and to redress

the social and environmental determinants of health. A well-structured public health system should be put in place to address the adverse effects. Poverty alleviation is one strategy that could bring resilience as well as reduce inequities. There is a need to mainstream research efforts on climate change and impact on human health. Programme priorities should focus on systematically collected data on adverse effects of climate change on human health.

*No competing interest.*