

## **Report Card on the Health of the Nation**

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The results from the first phase of the fifth round of the National Family and Health Survey (NFHS 5) (conducted between June 2019 and January 2020) were released in December 2020. We now have the key results from the second phase (conducted between January 2020 and April 2021). With the release of data on key indicators for both phases, we now have the latest national report card on health and demographic measures. How did India fare? It is a mixed verdict, containing both cheer and alarm in abundant measure. Before going into details, we should note that NFHS results are worthy of our attention because it is not a hastily put together state-of-health index. Together the two phases provide a detailed, comprehensive, multi-dimensional report card on the state of India's demographic and health trajectory.

There are many pluses in the report card. A comparison of NFHS-5 with NFHS-4 (2015-16) reveals improvement in several dimensions such as educational attainment, institutional deliveries, vaccinations, infant mortality and much more. The data released so far are summary measure. As the detailed unit level data become available, there would be meticulous rigorous analyses of whether the improvements are good enough given the scale and depth of what needs to be done on a variety of health indicators. For now, we can appreciate the progress, especially given the abysmal state of India's health infrastructure, which has been tragically apparent since the Covid-19 pandemic hit. Given how little India spends on health and education as a share of GDP, these improvements are particularly remarkable.

NFHS-5 collected data from 636,699 households, 724,115 women, and 101,839 men across all states and districts of India. The number and range of the variables in the data are massive. While we await the complete unit-level data, NHFS released all-India and state level fact sheets containing summary statistics on 131 key indicators. In this essay, in the interest of brevity, I focus on a subset of these key indicators.

### Total Fertility Rate

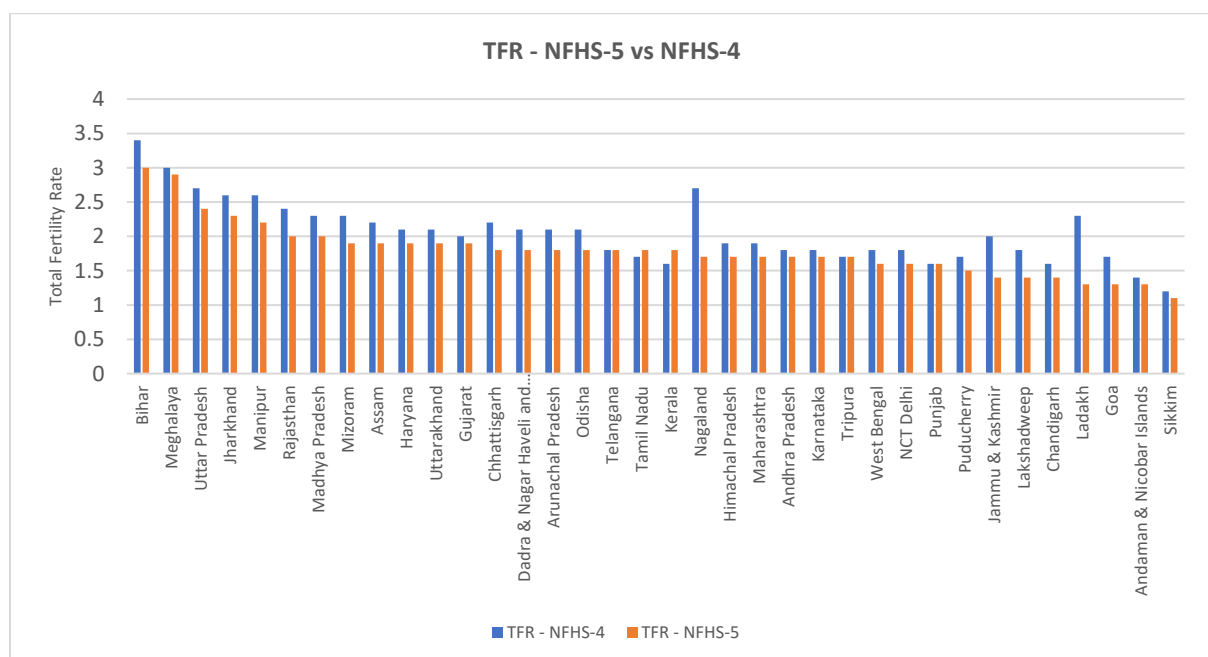
The biggest positive headline news from NHFS-5 is that the total fertility rate (TFR), which is the average number of children born to a woman during her lifetime, has been falling over time and is now just below the replacement rate of 2.1, down from 2.2 in NFHS-4, conducted in the year 2015-16. According to the UN Population Division, a TFR of 2.1 is considered replacement level TFR. It means that at a TFR of 2.1, a population successfully replaces itself without growing or degrowing.

Urban India has already reached below replacement TFR. NFHS-5 reveals that urban India has a TFR of 1.6 while rural India's TFR is 2.1. Figure 1 shows state-wise TFR for NFHS-4 and 5. According to the latest data, India has only five states with a TFR higher than 2.1. These are Bihar (TFR:3.0), Meghalaya (2.9), Manipur (2.2), Jharkhand (2.3), and Uttar Pradesh (2.4). Two states that had a TFR below replacement levels already, viz., Kerala and Tamil

Nadu, have registered an increase in their TFR in NFHS-5 as compared to NFHS-4. Kerala's TFR has increased from 1.6 (NFHS-4) to 1.8 (NFHS-5) while Tamil Nadu's has increased from 1.7 to 1.8. However, both states' TFR has remained below replacement TFR.

Even Bihar and Uttar Pradesh have shown significant improvement in their TFR over the last decade and half. In NFHS-3 (2005-06), Bihar had a TFR of 4, which came down to 3.4 in NFHS-4 (2015-16) and has now reached 3. Uttar Pradesh's TFR was 3.82 in NFHS-3, which reduced sharply in NFHS-4 to 2.7, and is now at 2.4 in NFHS-5. This shows that even for the most populous Indian states, TFR has registered a sharp decline since 2005-06. This trend should set to rest any fears of a population explosion in India.

Figure 1



Therefore, politicians can strike one thing off their to-do list and devote their energies to urgent health matters, instead of raising the bogey of population explosion to justify coercive population policies. There is absolutely no evidence to justify tying welfare support measures or holding elected office to the number of children.

### Sex Ratio

Another headline reveals that nationally, there are 1020 adult women per 1000 men for the first time. It is important to note that this is sex ratio of total population and not sex ratio at birth. Figure 2a shows sex ratio of total population in states and UTs covered in NFHS-5 Phase 1. Figure 2b shows the same for states and UTs covered in Phase 2 of NFHS-5.

As per NFHS-5, there are 23 states and UTs in the country which have a sex ratio of more than 1000 women per 1000 men for the total population. NFHS-4 had 18 such states and UTs. Among large states, Kerala has registered the highest improvement in sex ratio in NFHS-5 (1121) over NFHS-4 (1049) at 7 percent. Karnataka and Tamil Nadu's sex ratio for total population has also improved by 6 percent and 5 percent to 1034 and 1088 respectively. Himachal Pradesh is the only large state in the country to witness a decline in its sex ratio of total population from 1078 (NFHS-4) to 1040 (NFHS-5).

Figure 2a

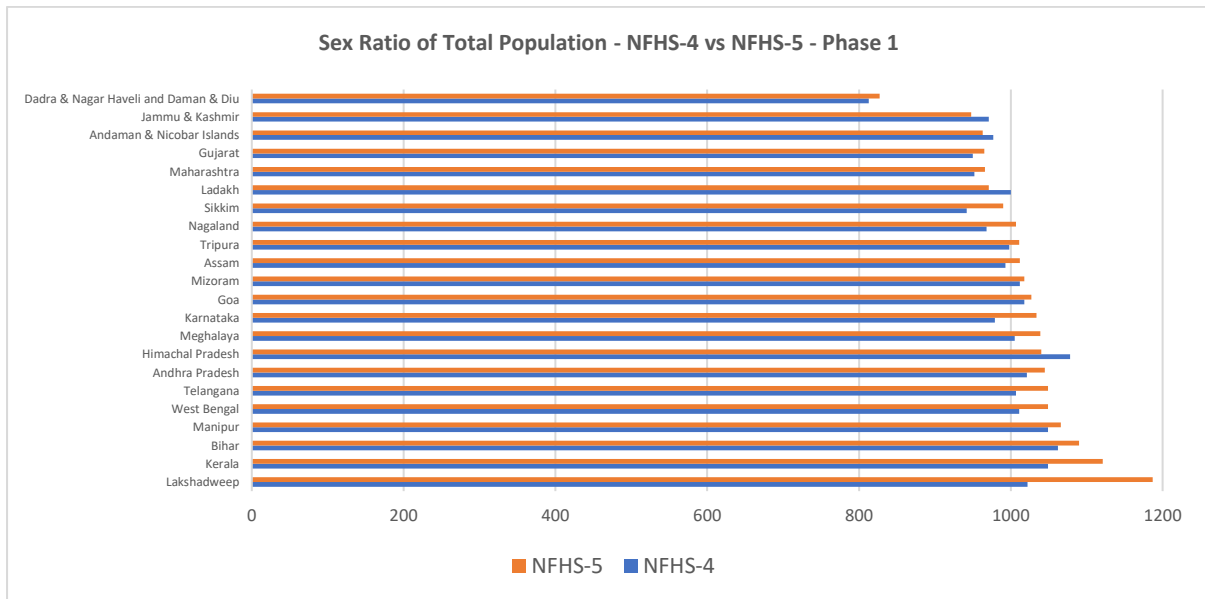
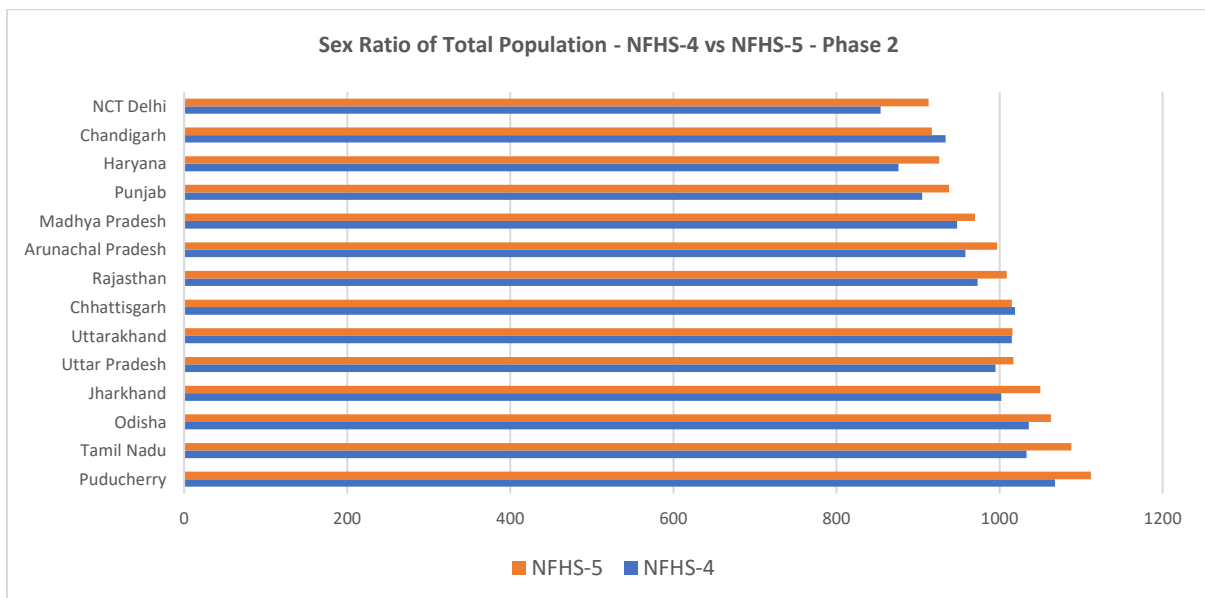


Figure 2b



Does this mean that Indian women are no longer “missing”, i.e., does this signal the beginning of the end of another tenacious problem, that of deep-rooted son preference which leads to illegal but pervasive sex-selective abortions as parents repeatedly try for at least one son?

#### Sex ratio at birth

To gauge this, the key metric to examine would be the sex ratio at birth (SRB). The natural SRB is 105 boys to 100 girls, which typically stabilizes to a 50-50 adult sex ratio. If there are pervasive sex selective abortions, leading to a masculine SRB (i.e., more than 105 boys to 100 girls), a part of this imbalance would carry forward into adulthood, but adult sex ratio is shaped by many factors other than sex selective abortions. In household surveys, the adult sex ratio is also subject to sampling errors, arising, for instance, from undercounting migrant males.

The natural SRB translates to 952 girls per 1000 boys. Nationally, the SRB has improved from 919 in 2015-16 to 929 in 2019-21, but it is still short of the natural SRB. As per NFHS-5, 17 states and UTs have an SRB of more than 952. This is an improvement, as NFHS-4 showed this to be the case for 11 states and UTs. Among the larger states, Uttarakhand has seen its SRB improve from 888 (NFHS-4) to 984 (NFHS-5). Karnataka has improved from 910 (NFHS-4) to 978 (NFHS-5). Among north Indian states, both Punjab and Haryana have improved their SRB but continue to have a low sex ratio at birth. Punjab has an SRB of 904 (up from 860 in NFHS-4) while Haryana has an SRB of 893 (up from 836 in NFHS-4).

Unlike the sex ratio of total population, sex ratio at birth has seen a decline in some states between NFHS-4 and NFHS-5. Among larger states, Kerala’s SRB has declined from 1047 (NFHS-4) to 951 (NFHS-5). Similarly, Tamil Nadu has seen its SRB decline from 954 (NFHS-4) to 878 (NFHS-5).

Figure 3a shows sex ratio at birth in Indian states and UTs covered in NFHS-5 phase 1 while Figure 3b shows the same for states and UTs covered in phase 2.

#### Figure 3a

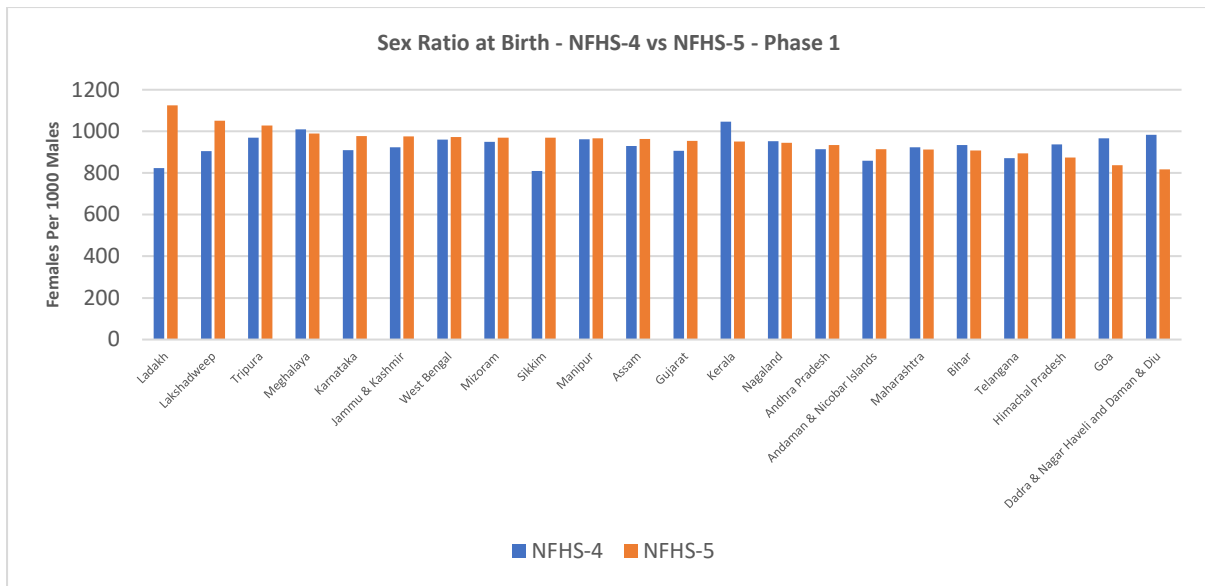
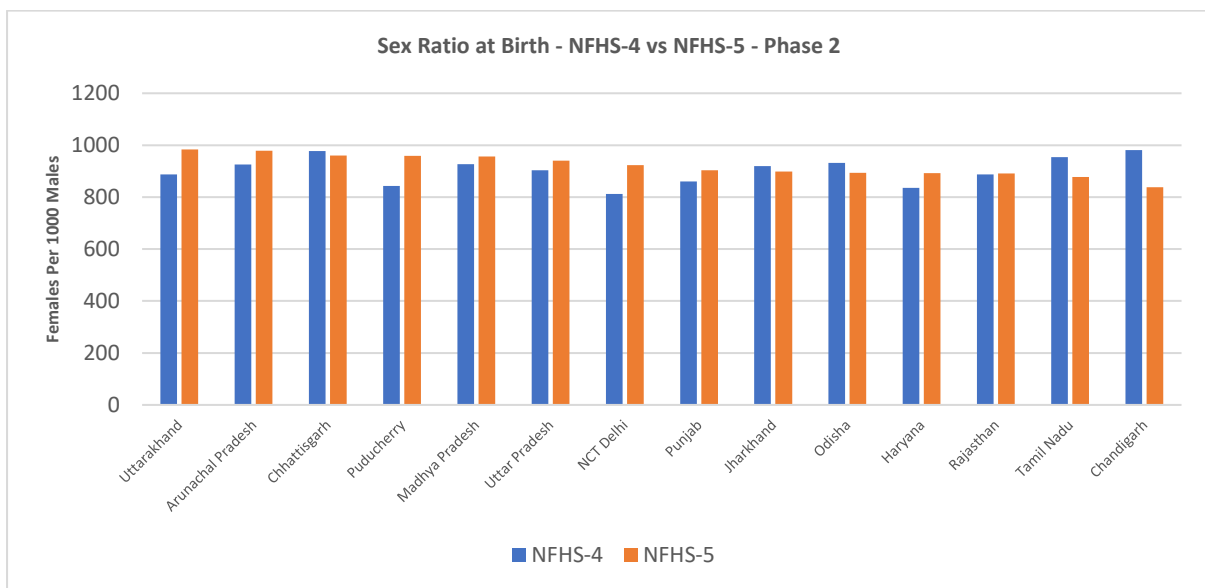


Figure 3b



Major states with low SRBs are spread all over the country: Uttar Pradesh, Haryana, Punjab, Rajasthan, Bihar, Delhi, Jharkhand, Andhra Pradesh, Tamil Nadu, Odisha, Maharashtra. While many states have seen an improvement in their SRBs, some have also witnessed a worsening, e.g., Maharashtra, Tamil Nadu, and Odisha. Therefore, there is need to recognize that the move to a small family size combined with persistent son preference is likely to impede the improvements in SRB.

### Anemia

Anemia refers to a condition when the body lacks enough red blood cells to supply oxygen to body's tissues. Among adults this can result in issues like fatigue and weakness. The WHO

classifies anemia as a serious global health problem. It also estimates that globally 42 percent of children under the age of 5 and 40 percent of pregnant women are anaemic. Anemia in children can hamper development of their motor skills. NFHS provides us information regarding the percentage of Indian children, men, and women who are anemic.

According to the WHO, less than 5 percent incidence of anemia in a country is not a public health concern. 5-19 percent incidence would make it a mild public health problem, 20-39 percent incidence would make it moderate public health problem, and 40 percent or more makes it severe public health problem.

NFHS-5 paints a grim picture of the anemia problem in the country. It shows that 67.1 percent of children under the age of 5, 57 percent of women aged between 15 and 49, and 25 percent of all men aged 15 to 49 have anemia. Not only does India have a severe anemia problem, NFHS-5 reveals a worsening position when compared to NFHS-4.

A key health indicator that has worsened over time is the incidence of anemia in under-5 children (from 58.6 to 67%), women (53.1 to 57%) and men (22.7 to 25%) in all states of India. Indian states show variation: from 39.4% in Kerala to 79.7% in Gujarat: but barring Kerala, all states are in the “severe” category. It is tempting to think of the worsening as the Covid-19 effect. However, comparing the changes in anemia in Phase 1 states (survey done pre-Covid) to Phase 2 states, we see that if anything, the increase in the former (which include AP, Assam, Bihar, Gujarat, Kerala, Maharashtra, West Bengal, among others) is on average higher than the increase in Phase 2 states (Delhi, UP, Chhattisgarh, Jharkhand, Rajasthan, Haryana, Tamil Nadu, MP, Odisha, Punjab, among others). The discrepancy between Phase 1 and Phase 2 could reflect differences in actual incidence or survey related issues.

NFHS-4 showed that 58.6 percent of children in the country were anemic. This has now increased to 67.1 percent. Kerala is the only state in the country where the percentage of anemic children is less than 40 percent. Only 8 states or UTs in the country saw the percentage of anemic children decline in NFHS-5 over NFHS-4. These states or UTs are spread over both phases of NFHS-5. The highest increase in anemic children is seen in north-eastern states.

When it comes to anemic women (aged 15-49 years), 13 states or UTs saw an improvement in NFHS-5 when compared to NFHS-4 however there are only 6 states or UTs where the percentage of anemic women is less than 40 percent in NFHS-5. Kerala is the only large state in the country with the percentage of anemic women is less than 40 percent.

There is a clear gender gap in the prevalence of anemia. Despite an increase in incidence of anemia overall in NFHS-5, only 25 percent Indian men are found to be anemic, compared to 57 percent Indian women. Even though India saw the percentage of anemic men increase in NFHS-5, 18 states or UTs (across both phases) bucked the trend and saw their numbers decline. States like Andhra Pradesh and Tamil Nadu saw the percentage of anemic men decline by 40 percent and 25 percent respectively.

## Institutional Births

When a baby is delivered in a medical institution under the supervision of trained health personnel, it is defined as an institutional birth. As per NFHS-3 (2005-06) only 38.7 percent of all deliveries in the country were institutional deliveries. This proportion jumped to 78.9 percent in NFHS-4 (2015-16). The rising trend has continued in NFHS-5, which shows that now 88.6 percent of all deliveries in the country are institutional deliveries. According to NFHS-4, only 14 states or UTs saw more than 90 percent institutional deliveries. This has improved to 23 states or UTs in NFHS-5. This is positive and welcome development.

We see substantial improvement even in states that are considered laggard in terms of socio-economic indicators. Uttar Pradesh, which saw only 26.2 percent institutional deliveries in NFHS-3 improved to 67.8 percent institutional deliveries in NFHS-4 and has now recorded 83.4 percent institutional births in NFHS-5. Among other north Indian states, Rajasthan and Haryana had 94.9 percent institutional births, as per NFHS-5, which is a substantial improvement from NFHS-3, when Haryana was at 35.7 and Rajasthan at 29.6 percent, respectively.

NFHS-5 shows that now there are only 6 states in the country with less than 80 percent institutional deliveries. 4 of these are the north-eastern states of Manipur (79.9 percent), Arunachal Pradesh (79.2 percent), Meghalaya (58.1 percent), and Nagaland (45.7 percent). The remaining two states are Bihar (76.2 percent), and Jharkhand (75.8 percent).

Another change is the rise in institutional births in public facilities. While NFHS-4 recorded 52.1 percent of all institutional births taking place in public facilities, NFHS-5 has seen this rise to 61.9 percent.

## Malnutrition Among Children

Analogous to differences in anemia, there are other instances of clear differences between Phase 1 and Phase 2 results. The three indicators of malnutrition: stunting (low height-for-age), wasting (low weight-for-height) and underweight (low weight-for-age): show an overall improvement. These conditions often occur together. Together, these reflect chronic or recurrent undernutrition, usually associated with poverty, poor maternal health and nutrition, frequent illness and/or inappropriate feeding and care in early life. These prevent children from reaching their physical and cognitive potential.

We should note that the overall reduction in national estimates of these three measures masks an anomaly. In Phase 1, several states revealed a worsening in one or more of these, whereas in Phase 2, none of the states show a worsening. It would be good to understand if the pandemic affected the survey in Phase 2, leading to undercounting of incidence, or whether by pure chance, all states in Phase 2 happen to be better performers on the malnutrition count (something that could not have been known at the start of the survey in 2019).

In addition to anthropometric measures, lack of adequate nutrition is measured by micronutrient deficiencies, i.e., lack of vitamins and minerals that are essential for body functions such as producing enzymes, hormones and other substances needed for growth and development. While NHFS does not have data on this, the issue of micronutrients is related to diets. It would be good to note here that Indians' diets display a rich diversity. Many traditional diets reflect both local climatic conditions as well as a multiplicity of sources of essential nutrients like proteins. Policing of diets, imposing an unnatural uniformity, and preventing access to animal protein for large sections of Indians that are not traditionally vegetarian is likely to reduce micronutrient diversity and contribute to poor health outcomes.

According to NFHS-4, 21 percent of Indian children were wasted. This declined marginally to 19.3 percent in NFHS-5. However, like stunting, wasting also saw state level variations. 12 states or UTs saw their wasting numbers worsen in NFHS-5. This includes states like Kerala, Bihar, Telangana, and Himachal Pradesh. Once again, all the states or UTs which saw an increase in percentage of children who are wasted were surveyed in phase 1 of NFHS-5. All the states or UTs which were surveyed in phase 2 of NFHS-5 saw a decline in percentage of children who were wasted. The highest improvement was seen in states like Haryana, Punjab, Rajasthan, Tamil Nadu, Madhya Pradesh, and Uttarakhand. Haryana saw percentage of wasting decline from 21.2 percent in NFHS-4 to 11.5 in NFHS-5.

The percentage of children who were underweight for their age declined from 35.8 percent in NFHS-4 to 32.1 percent in NFHS-5. Here too, the overall number hides state level variations. 16 states or UTs (all covered in phase 1) saw the percentage of underweight children increase in NFHS-5 over NFHS-4. This includes states like Kerala, Maharashtra, Gujarat, Assam, West Bengal, and Telangana. On the other hand, all the states that were covered in phase 2 of the survey saw their numbers improve. States like Haryana, Punjab, Rajasthan, Odisha, and Tamil Nadu saw the percentage of underweight children decline substantially in NFHS-5 over NFHS-4.

#### Nutritional Status of Adults: Obesity

Malnutrition is manifested in two ways. Along with an improvement in these three indicators, we see an increase in proportion of overweight children, women and men. Being overweight also reflects malnutrition, with serious health consequences in the form of non-communicable diseases. The proportion of children under 5 that are overweight (weight-for-height) has increased from 2.1 to 3.4% between NHFS-4 and 5. Thus, for very young children, the three indicators examined above are sources of worry. However, for adults, the opposite is true.

The proportion of malnourished women, with a below normal body mass index (BMI <18.5 kg/m<sup>2</sup>) has declined from 22.9% in NFHS-4 to 18.7% in NHFS-5. For men, the corresponding change is from 20.2% to 16.2%.



While under-nourished adults indicate inadequate nutrition, India is simultaneously witnessing another nutrition related health challenge, viz., obesity. Along with an improvement in the three chronic malnourishment indicators for children, we see an increase in the proportion of overweight children, women and men. Being overweight also reflects malnutrition, with serious health consequences in the form of non-communicable diseases.

One way to measure obesity is through BMI ( $>25.0 \text{ kg/m}^2$ ). While 2.1 percent children (less than 5-years old) were overweight in India, as per NFHS-4, this has now risen to 3.4 percent in NFHS-5. In case of women, 24 percent are found to be overweight (or obese) in NFHS-5 as compared to 20.6 percent in NFHS-4. For men, the percentage of overweight population has increased from 18.9 percent in NFHS-4 to 22.9 percent.

Only 3 states and UTs out of 36 show a decline in percentage of overweight children in NFHS-5 over NFHS-4 while all the remaining states/UTs show a substantial increase. Among large states, Rajasthan and Jharkhand have the lowest percentage of men and women who are overweight. In Rajasthan only 12.9 percent women are overweight in NFHS-5 (down from 14.1 percent in NFHS-4) while in Jharkhand only 11.9 percent women are overweight in NFHS-5. However, in Jharkhand's case this is an increase from 10.3 percent in NFHS-4.

Another way to gauge obesity, particularly to assess whether overweight poses a risk of cardio-vascular diseases, is to focus on the waist-to-hip ratio. A value of 0.85 or more is considered risky. These figures are not available for NHFS-4. For 2019-21, a little under half of adult men (47.7%), and the majority of women (56.7%) have a high-risk waist-to-hip ratio. These proportions are higher in urban compared to rural areas.

This puts adults at risk for a range of diseases that are lifestyle induced. These diseases are non-communicable and lowering the incidence of these diseases is often possible (albeit not easy). In addition to sensitization campaigns encouraging the population to adopt healthier habits, this also needs changes in the ecosystem. For instance, campaigns directed towards encouraging walking are likely to fail in the absence of footpaths, pedestrian-friendly spaces, e.g., roads with no vehicular traffic and parks, well-lit and safe streets. In cities, people tend to walk more on a daily basis when they use public transport. A reduction in the use of private transport cannot be achieved only by messaging; an entire ecosystem that encourages walking needs to be planned and created. Another example of a change in the ecosystem is availability of affordable healthy food in cafes and canteens that are currently dominated by unhealthy but attractive and affordable junk food.

#### Infant and Child Mortality, Child Vaccinations

India's record on mass vaccinations for children has been impressive, especially considering the overall poor state of the country's health infrastructure and the slow progress on several other health indicators. NFHS-5 data reveal that the proportion of children who received the BCG (95.2%), 3 doses of polio (80.5%), measles containing vaccine (MCV) (86.7%), 3 doses of hepatitis B (83.9) are high, and show an increase compared to NHFS-4. The public healthcare system deserves congratulations in this sphere as 94% of children (97% in rural areas) have received most of their vaccinations in a public health facility. The

coverage of vitamin supplements (e.g., Vitamin A supplements) is relatively lower at 71% but is an improvement over 64.5% in NFHS-4. Summing up at the national level, the vaccine story is positive, with room for improvement.

### Women's Autonomy, Empowerment and Gender-based violence

The survey focuses on women's empowerment, autonomy, and mobility indicators. The proportion of currently married women (ages 18-49) who usually participate in three household decision (decisions about health care for herself, making major household purchases, and visits to family or relatives) has increased from 84% in 2015-16 to 88.7% in 2019-21 (91% in urban and 87.7% in rural areas). This suggests that the narrative of seclusion of Indian women needs to be nuanced. While there is tremendous scope for women's empowerment to improve along many dimensions, the NHFS-5 results indicate that the challenges or deficits might be in dimensions other than female seclusion.

The improvement in decision making and mobility is also reflected in two other indicators: one, women having a bank or savings account that they themselves use, which has increased from 53 to 78.6%; and two, women owning a house and/or land (alone or jointly with others), which increased from 38.4 to 43.3 between 2015-16 and 2019-21. This period also saw an increase proportion of women having a mobile phone that they themselves use, which increased from 45.9 to 54%, with the proportion in urban areas being close to 70%.

### Menstrual hygiene and Reproductive health

The survey shines a spotlight on women's reproductive health and delivery care. On the latter, the good news is that close to 94% births in urban India are institutional births (89% overall). However, institutional births in public facilities are 62%, up from 52% in 2015-16. The public-private division matters; and not just for cost implications. One statistic that draws attention is that caesarian births have increased dramatically. In private health facilities, 47.5% births are by C-section (14.3% in public health facilities). These figures are highly unnatural and call into question unethical practices of private health providers who prioritize monetary gain over women's health and control over their bodies.

On all indicators of antenatal and postnatal care (check-ups in the first trimester, at least four antenatal visits, protection against neonatal tetanus, iron folic acid supplements etc.), NHFS-5 records an improvement over NFHS-4. However, the extent of improvement over each indicator varies, with the progress on some indicators remaining sticky, e.g., mothers who consumed iron folic acid for 180 days or more when they were pregnant increased from 14.4 to 26%. The importance of this intervention cannot be overstated given that the severity of anemia prevalence has worsened in the country.

### Concluding Comments

Some analyses have suggested that the rate of progress has slowed down, based on comparisons between NFHS-4 and 5 to the improvements between the two previous rounds. We would not be able to claim this yet, since comparing changes over a 10-year interval (between NFHS-3 (2005-6) and NFHS-4) to a five year interval (between NFHS-4 and 5) is misleading.

Some have argued that the poor health outcomes reflect the effect of Covid-19. The data for the second phase of NFHS-5 has been, to a large extent, collected during the highly unusual conditions of the Covid-19 pandemic, but as the evidence on anemia shows, the deterioration in public health indicators cannot be attributed entirely to the pandemic. Covid-19 might have added fuel to the fire of poor public health, but it did not cause the fire.

The biggest positives that NFHS-5 reveals are the decline in India's TFR to below replacement level and the increase in institutional births in the country. The decline in TFR has implications for both politics and policy. Various political leaders have suggested coercive measures to control a feared population explosion like China's one-child policy imposed in the 1990s (and reversed recently) while others have suggested tying welfare support measures or holding electoral office to the number of children. With the decline in India's TFR, all such fears and debates can be put to rest.

The increase in institutional births across all of India from NFHS-3 to NFHS-4 and NFHS-4 to NFHS-5 suggests an improvement in India's healthcare system. While India's healthcare spend remains abysmally low, this is a positive trend which can ensure the well-being of both mother and newborn. However, institutional births are but one aspect of maternal care.

What NFHS-5 highlights - as previous round of NFHS did - is the public health challenge that Indians, especially women and children face. It reveals deep inequality across states. While some states like Kerala compete with advanced economies in health outcomes, others find themselves at par with sub-Saharan Africa. NFHS-5 underlines the need for ramping up India's public health expenditure and a focus on ensuring improvements in health outcomes in states that still languish.

The overall evidence is compelling and clear: health ought to be a matter of concern for all political parties and all state governments. The state of public health needs urgent attention and resources to enable improvement.