Introduction to Maternal Infant Young Children Nutrition

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Lecture - 1
Session - 1
NFHS 4 and 5 Data

Hello, everyone. Welcome to my Session 1 on Maternal Infant Young Child Nutrition and experience from fields. Here in this session, I will be discussing NFHS, 4 and 5 data which has just come out. I will be talking about what is the definition of maternal-infant and young child nutrition. I will also touch base upon our data from different projects that we have done in the urban, slum, as well as in rural areas, tribal areas at a district level. Now, we are also doing a project at a state level, so I will be discussing that.

And I will also discuss what is important, i.e, what are the frameworks. On what frameworks we created this program, specifically in open slums. So, I will be discussing the framework of maternal-infant young child nutrition, the implementation of programs, and why all these skills are important on maternal nutrition, breastfeeding techniques, complementary feeding. So, today will be more of an introduction to the course. And I am more than happy to discuss this burning issue of poor nutrition among maternal and young children in our country.

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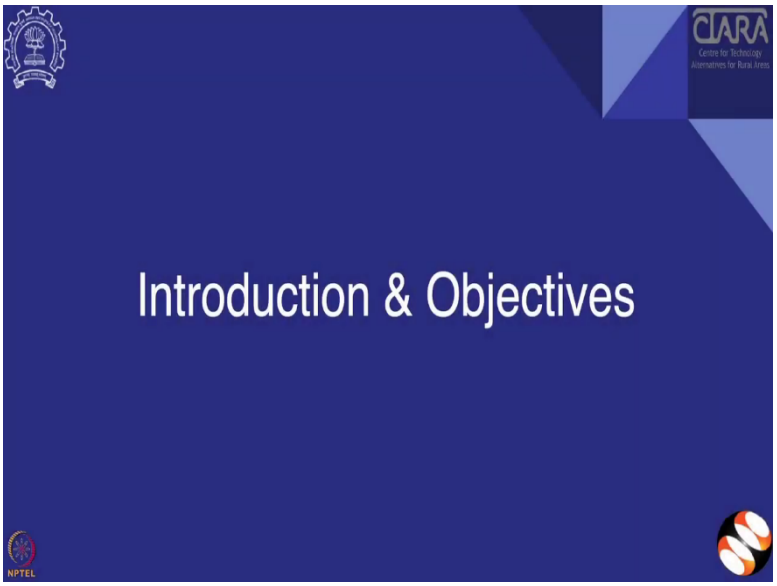

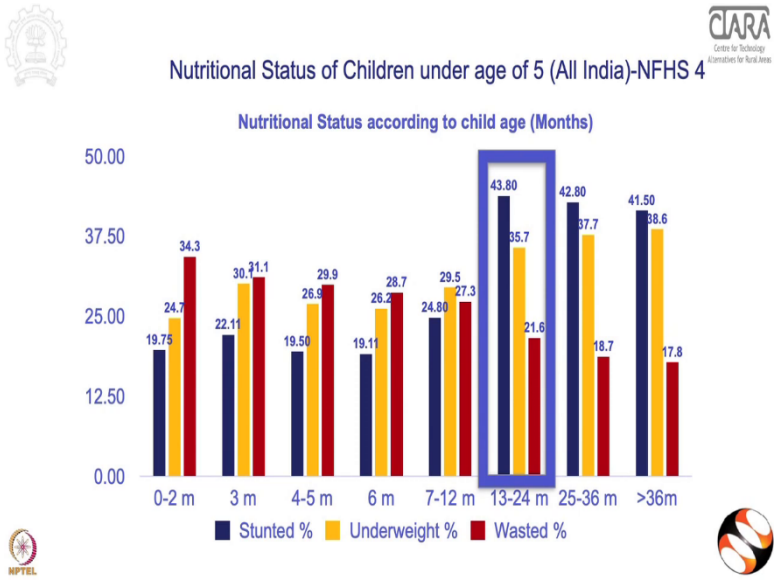

So, talking about introduction objectives, so basically what is MIYCF? MIYCF is Maternal Infant Young Child Nutrition. Maternal means pregnant mothers and lactating mothers' nutrition, and health, of course, and your infant, which is your children between birth to one year of age, and children, young children that are under two years of age. So that encompasses basically feeding practices of not just, you know, young children, but also maternal nutrition, so your pregnant and lactating mothers.

And why it is important, because this is one of the very important phases in a human being's life where the baby is kind of being formed in the womb during pregnancy, and then basically there is a tremendous amount of growth occurring in the baby's brain, baby's physical growth. And, unfortunately in India, MIYCF practices are not kind of followed correctly and that is why we have so much undernutrition, so much malnutrition, our IYCF indicators are pretty, very poor, actually, in India. And I will be discussing that also a little bit of data on that. And what can be done in the field? So, our own experience of what we did at NGO levels at the district level, and now we are working at a state level, so I will be discussing that data also.

And how we have implemented this program, what can be done? What are the learnings? And we are still learning. It is not that I know everything, but I am just discussing basically what we have learned so far. So, coming to our NFHS 4 data. Now, what is NFHS? NFHS is your National Family Health Survey. This is a national-level survey, which is conducted every four to five years.

And recently NFHS 5 data just came out yesterday, in fact, I am talking about the national-level data. So far, we had about 22 state and Union Territory data coming from NFHS 5, which was conducted around say, around November 2019 or so during that time timeframe period. But since it just came out yesterday, I do not have a lot of slides on NFHS 5, which I will eventually have by probably by three or four weeks on the third or fourth session actually. But let us discuss NFHS 4.

And I want to kind of show you what is the problem at a grassroots level. When you look at all these children what data basically came out from NFHS 4. So, here is one slide where we have basically plotted children's nutrition indicators. So, I would say in this case malnutrition indicators. And then looking at the percentage-wise that how many children are malnourished in India, as per NFHS 4.

So, looking at it age-wise, here this red line is your wasting. Again, I will be talking about wasting in my growth chart session, and also in the second session, which will be on, nutrition, the science of nutrition, malnutrition, and I will be discussing what are the types of malnutrition. So, looking at just general viewpoint of how children are doing as far NFHS 4 data.

So, our red line indicates children are too thin, too thin for their height, that is also called wasting. Then you have this yellow bar, which is your underweight, so children basically weigh less than what they are supposed to be at that age. So, that is weight for age is basically your underweight area, and the blue line is stunting. Stunting means short, how short children are.

So, if you look at the age-wise data, look at this red line. We will follow the red line first which is children are too thin for their height or length. So, 0 to 2 months of age you can see there is a 34.3 per cent children are too thin for their height in under 2 years actually we call it length, so they are too thin for their length. Look at this, this line is highest when it comes to age wise criteria so 0 to 2 months was 34.3.

As children become older, so, 3 months, 4 to 5 months, 6 months, 7 to 12 months, you can see there is not much change, a slight change in those wasted children. That means that first six months of age, children are not getting proper nutrition. What I mean is that, of course, many of our children are breastfed, but with proper breastfeeding, this wasting should come

down they should start gaining weight pretty quickly when children, mothers are taught proper breastfeeding skills, so this is not happening in India.

Almost those children who are born wasted kind of stay wasted, not many children come out of it. In fact, many children may come out of it, but a lot more children have growth faltering. So, when we work in the field and when we collect data we see there is a tremendous amount of children there is a growth faltering.

Now growth faltering may not be so much that it shows up on this graph, but there is definitely a lot of growth faltering occurring in most of our children. And many of these children are not breastfed, so, they are on cow's milk, so they too get a lot of diarrhoea, they get a lot of other problems of formula feeding or cow milk feeding, and that I will discuss more detail when I will come to that session.

So, and then what happens, after 1 to 2 years of age, this kind of wasting goes down, as you can see from 27 per cent, it went down to 21.6 per cent, then 18.7 per cent, then 17.8 per cent. But coming from my experience, this, the SAM, this acute malnutrition also called wasted children or too thin children they basically it get masked. Because what happens is when you look at their blue line.

Now blue line, look at the stunting, stunting means children are born short. Born short or they stay short or they become short any of the three could be a possibility. So, stunting at birth, say between 0 to 2 months is almost 20 per cent. Now, the stunting kind of stays similar till 6 months of age, which means there is no reversal of stunting. And in fact, many children probably are falling into stunting under 6 months of age.

And when children do not have proper milk transfer, milk transfer means transfer from mothers to babies, then as wasting increases, as underweight increases, your stunting start showing up. Stunting is more of a long-term phenomenon, it is not something that is acute. It takes time for a child to not grow. First, the weight will not grow and then their height will not grow or the length will not grow.

So, here what we are seeing is basically by 7 to 12 months of age, look at the stunting level going up. From 19.11 per cent at 6 months to 24.8 per cent, that means, this section 7 to 12 months is a time period where the mother is introducing solid food. So, in the setting of poor nutrition under 6 months of age, when children are not fed proper food, which are diversely

diverse diet, I would call those children then continue to not grow or they become stunting sets in.

In fact, the stunting sets from the first 6 months. And I would in fact go back to even mother's nutrition. If a mother's nutrition is not good, stunting sets in at birth. And then poor milk transfer, or basically formula intake or even of those cow milk. In our setting in India, it causes a lot, I mean, of course, it causes problems in any child anywhere in the world, but in the developing world, what we have is basically we do not have clean water, we do not have access to good sanitation, we do not have very good wash program, so these children, they get frequent diarrhoea, frequent pneumonia - children who are on formula-fed.

What problem we see in U.S. where I come from the U.S. where most of these children are on formula feeding, but because of good nutrition, they continue to grow well, but the problem with formula feeding is it is basically highly ultra-processed food, so these children are at very high risk of developing, not only cow milk protein allergy, but also allergic diseases, asthma. We see a lot of this skin problem, something called Eczema.

We also see these children are very obese. In fact, by 1, 2 years of age, they are overweight, they are obese and we are seeing type 2 diabetes and by 3 to 4 years of age in the U.S now. So, basically, formula or cow milk protein is absolute no, no for in any country, but in India specifically, definitely no, because we do not have access to clean water and, in our public health system, so these children are very high risk of diarrhoea.

But now look at, now we have almost, NHFS 5 data came out, and we have exclusive breastfeeding rate up to 62 per cent. So, even those children who are exclusively breastfed, are not getting proper milk transfer because of inadequate skills in mothers and healthcare workers. And when in that setting, when children are, children they start growing by 7 to 12 months of age, the introduction of complementary feeding is so poor, that these children just do not do well, even after 7 months of age, so, the stunting continues to increase your underweight, underweight is your yellow colour, so you can see the underweight also kind of remains the same 24.7 per cent at birth to almost 26 per cent at 6 months.

So, again, that milk transfer has not occurred well. And then by 6 months after 6 months, as you can see that poor introduction of solid food causes a decrease in poor weight gain in

children. And because of the poor introduction of solid food look at what happens at 1 to 2 years of age. Tremendous growth faltering in terms of weight, and length of these children.

Length is what we call it for under 2 years of age. Height is between 2 to 5 years of age. So, look at this, almost doubling of stunting, which is your height, poor height from 20 per cent to 43 per cent, so more than double. Why this sudden increase and stunting because the stunting has not started just from a 1 year of age it has the stunting setting has started from literally from mother's nutrition to birth to first 6 months to 6 to 12 months.

So, everything has gone wrong. And this is when you are showing up, your child is showing up as this kind of severely stunted or moderately stunted at one year of age. And again, the underweight goes up, so you can see, see how children are just not growing and underweight continues to rise. Your stunting basically, there is no change whatsoever in stunting level also.

And because children are stunted so much, so as per the length of the child, child weight is absolutely lower. Obviously, because children are small the bone weight is low, there is lean mass, which is not enough. So those children are going to be obviously kind of underweight.

So, when you look at the compare the data of length for or the weight for length or the weight for height, these children because they are born, they are small, so their weight is too small, so these children are undernourished. But when you look at the acute malnutrition, when you look at when you compared to weight for length criteria, these children may look okay.

So here that is why you are seeing that SAM children MAM children wasting is going down, but it is masking. Basically, what you are not seeing is acute malnutrition so much. Although just 21 per cent is pretty high because 21 per cent is an emergency, we have to look at the holistic way of that child, because many times the tall child, this is what I am talking about my experiences right now is when you have a tall child, who is stick thin, but he has good nutrition going in, he has good lean mass and all but he may be tall and lean.

Now, those children may show up in wasting stats. They may show up as to for that height, that weight is not enough, but if the child is metabolically healthy, the child does not get infections, the child continues to do well, cognitively wise, intelligence wise, then I am not worried too much. Yes, I am definitely worried about the severe acute malnutrition, but, just wasting by itself at just cross point data I am not concerned, I am concerned more about the stunting part and the underweight part, not so much for weight for length or weight for

height. This is my personal view. So, this is why we need to take this course to understand the issue and the problems that we are facing in the field, and what are the solutions.

So, if we actually fix this area over here. Fix mother's nutrition, fix your breastfeeding skills and fix your complementary feeding intake in children, then basically, we will get rid of at least stunting and underweight part. Wasting, wasting is very dynamic. Wasting means thin for their height or length it is very dynamic.

So, dynamic means the child gets one episode of diarrhoea and the diarrhoea is very severe, suddenly child will lose weight, so that child may not kind of the height will maintain, the length will maintain but suddenly child loses weight because of some illness child say refuse to eat for a week in case of diarrhoea, pneumonia or any other acute illnesses, that child will lose weight.

So that child will show up in your probably MAM or SAM, but those are acute illnesses. So, once you treat those illnesses, a metabolically healthy child will come back right out of SAM, MAM. It is not again the borderline children I see in my experiences they come out right back once you treat those infections very quickly with whatever medicine which need to be given. For diarrhoea ORS and zinc work beautifully.

But children who are chronically malnourished, children who are metabolically unhealthy, those children once they go into wasting, stay there. Even if you give them say any of those treatments which are recommended by WHO and UNICEF those children they can come up momentarily from those from that malnutrition, acute malnutrition, but as soon as you stop that treatment, they go back again into SAM, MAM and this is a huge issue in India.

That means, what we are doing is, what we're doing for these wasted children, that acute malnutrition, we are momentarily patching them by giving them calories, giving them protein and all. But what happens once you stop it, they could fall back because they just are not healthy, to begin with.

So, my focus is really to make them healthy, make them strong, make the lean mass, grow them tall, make them metabolically healthy. And then even if they have minor illnesses, they will come back right out as soon as the illnesses go away because the appetite comes back. So

that is why again, my focus is very much on the prevention of wasting, prevention of stunting, prevention of underweight, and that is what I am going to discuss in this topic.

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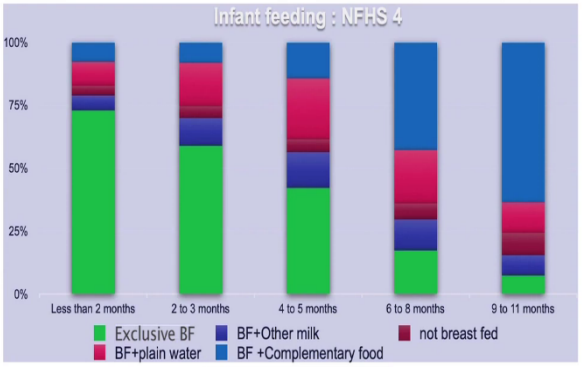

Now, let us start with infant feeding, specifically breastfeeding. I will come to maternal nutrition in one of my sessions, but I do not want to discuss that right now. I am going to talk about basically, the very, very important issue of breastfeeding. Because what I have seen in my experience, if babies were breastfed, well, even if they were born small, even if they were born, low birth weight, even if they were born, say premature, but once those breastfeeding skills were taught to the mother by healthcare workers or anybody, those babies were absolutely growing very beautifully.

This is what we have shown in many projects, and in fact, we are doing this one study, which is almost over, so I will be analyzing that data. Even in that preliminary data, we show that low birth weight babies and even borderline underweight babies were growing beautifully on just breastfeeding, proper breastfeeding latch. So here's what I want to show you, this is NFHS 4 data again.

So, this green bar is basically your exclusive breastfeeding. This is age-wise data that I am showing you. The blue one dark blue is your breastfeeding and other milk. So other milk could be your cow's milk or you know your formula or any other animal milk. Redline that the red bar the dark red is not breastfed at all.

The light red one is breastfeeding and plain water. So, some of these babies were getting water. There are a lot of myths that are present in people. They feel when it is hot, you should take give breast milk or breastfeed or water besides breast milk. So, these are some of the per cent of children who get breast milk and plain water.

And then some mothers or some families start breastfeeding with complementary feeding. Can you imagine they start by less than 2 months of age? And this is absolutely because of a lack of awareness. So here is the data for less than 2 months of age.

Now as you can see, as the age advances the exclusive breastfeeding rate goes down. So, look it over here up to 4 to 5 months of age because this is what is the children should be exclusively breastfed. And look at this, the complementary feeding intake increases, your plain water increases, of course, under 6 months of age, your breastfeeding and other milk prevalence increases, but look at your exclusive breastfeeding rate going down tremendously, why should it go down?

If babies are gaining weight on breastfeeding why should mothers start anything else but breast milk, right? And this is where the issue is, that a lot of these babies are not putting on a lot of weight there is a tremendous amount of growth faltering occurring. And with and because of that, there is no other choice but mother feel that my baby is not gaining weight, I am not getting enough milk and they start top feeds, and this is the issue. This is the issue I faced in India, really, working in slums in tribal areas.

And by 6 to 8 months of age, you can see that now babies should be started on complementary feeding, so complementary feeding has not started in all the children by the time child is you know completing 6 months, only about I would say less than 50 per cent of children are started complementary feeding. So, now you see children are still kind of some children are on exclusive breastfeeding, even up to 8 months of age when they should have been started on complementary feeding.

A lot of these children are only getting breast milk and plain water. Some of them are getting breast milk and so look at the poor starting point of complementary feeding. And similarly, at 9 to 11 months of age, literally almost about 30 per cent of children are not started on complementary feeding, and this is the important stage after 6 months we have to start very

nutrient-dense complementary food for these children. So, this is the issue in India. This is basically up to 1 year of age. Our IYCF does not start well in India. This is NFHS 4 data.

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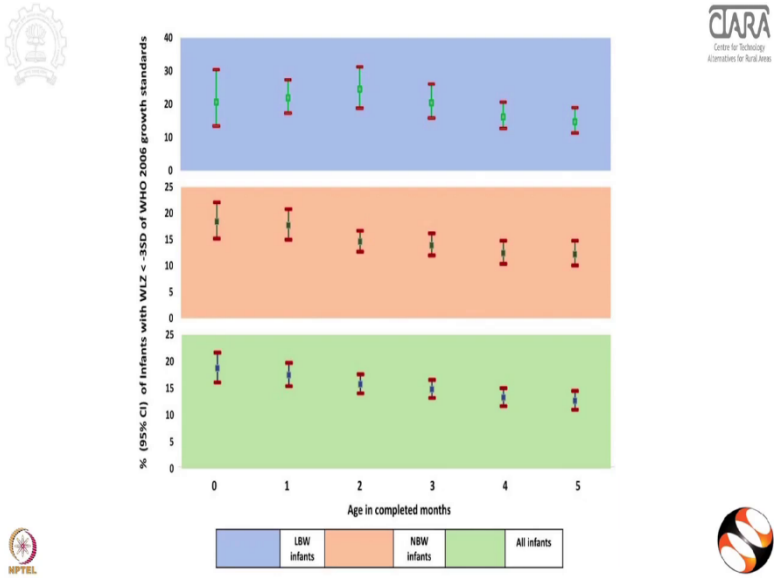

Now, this is NFHS 4 data. If you look at your minus 3 standard deviation, which is your weight for length. This is again your infant would weight for length less than minus 3 standard deviation, and look at the number of children who are acutely malnourished. Acutely malnourished means, they are too thin for their length and this is minus 3 standard deviations, they are severely malnourished. So, I will discuss more what are the standard deviation.

Why do children become so malnourished I will discuss that later. But these are SAM children Severely Acute Malnourished children. So here this is your blue zone is your low birth-weight babies, low birth-weight means less than 2.5 kg. This is your yellow zone which is your newborn weight infant.

So, this is your like children who are more than 2.5 kg and this is your newborn with a normal birth weight I am sorry about that, and then the green zone is your all infants. So, all children basically your normal birth weight as well as your low birth-weight babies are basically in the green zone.

So, if you look at it look at the SAM, the average SAM. At around I would say under 6 months of age is almost 20 per cent, and basically, you can see there is not much difference in SAM status. And this is as per WHO criteria. Say similarly for normal birth weight, you can see similarly it is similar, there is not much difference, an average, it is around 20 per cent.

And there is not much change, slight improvement at around 5 months of age, again, because children are not growing at all. So, the length is not increasing. And as per that, basically, SAM is just getting masked. And similarly, for all weight children, there is not much change in SAM status in Indian children.

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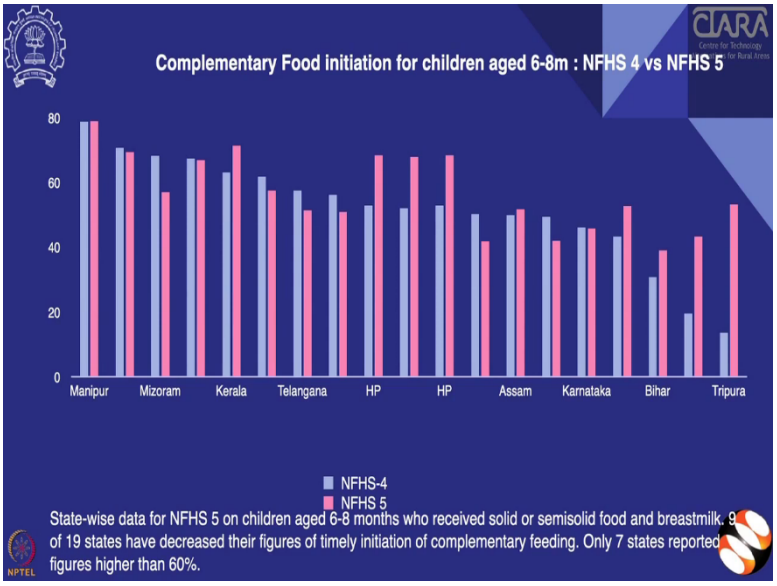

Talking about complementary dietary diversity NFHS5 data. I am just going to talk about 22 states and union territories, which data had come out of, almost a few months ago, so I will be discussing more of that. Look at these few states data. So, here is basically this slide is on complimentary food initiation for children aged 6 to 8 months. This means, how many children were started on complementary food between 6 to 8 months.

Now, the recommendation is to start as soon as the baby finishes 6 months, which is 180 days, so post 181 days child should be started on complementary feeding. But look at this, these are the number of children who are not started complementary feeding from 6 to 8 months of age. So, it is kind of solid or semi-solid food or is not started.

So, look at this Manipur has so, your brown colour or your grey colour is your NFHS 4 and your yellow colour, which the orange colour is basically NFHS 5. So, if you look at it Manipur has a very good initiation. So, pretty much almost 80 per cent of children, are started on complementary feeding between 6 to 8 months of age. But as we go down, look at Tripura or Bihar.

Of course, there is an improvement in Bihar from an NFHS 4 to NFHS 5, but if you look at it, it is only around 40 per cent of children are getting initiated and complementary feeding at the right age. Tripura also remarkable improvement in complementary feeding, but I do not see much improvement in Telangana. I do not see much improvement in many of these other states. In Mizoram the complementary feeding status not doing very well. So, this is some data of some of the states.

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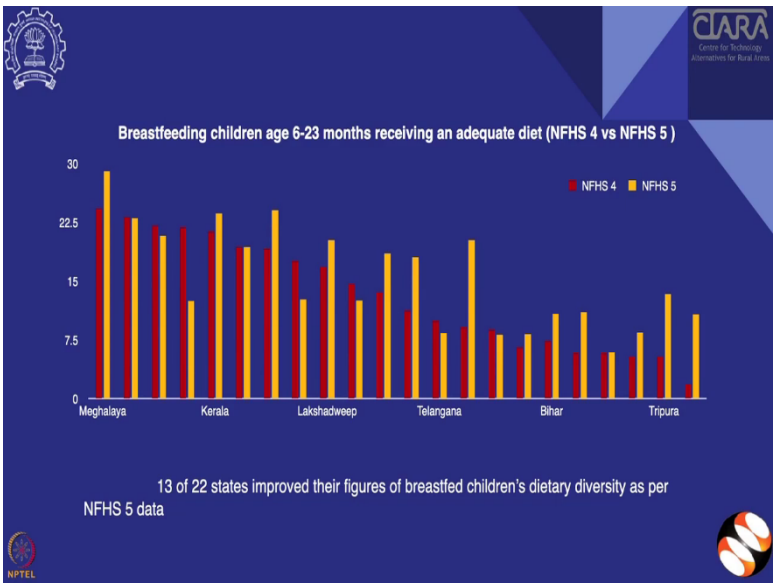

Now, this is a slide on breastfed children. So, children who are breastfed between 6 to 23 months of age are receiving an adequate diet. So, an adequate diet is your dietary diversity and frequency, and that basically any amount of course. So, this is what it shows in Meghalaya and this is the difference between NFHS 4 and NFHS 5 data.

So, you can see it. Literally, look at this, most of our children are not kind of given minimum adequate diet MAD, we call it MAD Minimum Adequate Diet, so they are not getting minimum adequate diet in a lot of these children. Recently data just came out and only about 11 per cent to 12 per cent of children in NFHS 5 data are receiving a minimum adequate diet that's very, very, very low.

In some states like Gujarat, we have only 5 per cent of children who are getting a minimum adequate diet which is your minimum dietary diversity. I will discuss that later in my other sessions, but only 5 per cent of children in Gujarat. Gujarat is an economically advanced state, one of the very advanced states I am talking about economy wise.

And if children are getting only 5 per cent of only 5 per cent children are getting minimum adequate diet so you can just imagine what must be happening at the state. But it is just again the lack of knowledge is not access to food in most of these areas, because I have worked in again, a lot of areas. The urban slums, tribal areas, so there is access to food. It is not that there is no access. It is just that there is a kind of, lack of awareness when it comes to mother's family members and healthcare workers, and we can improve that remarkably.

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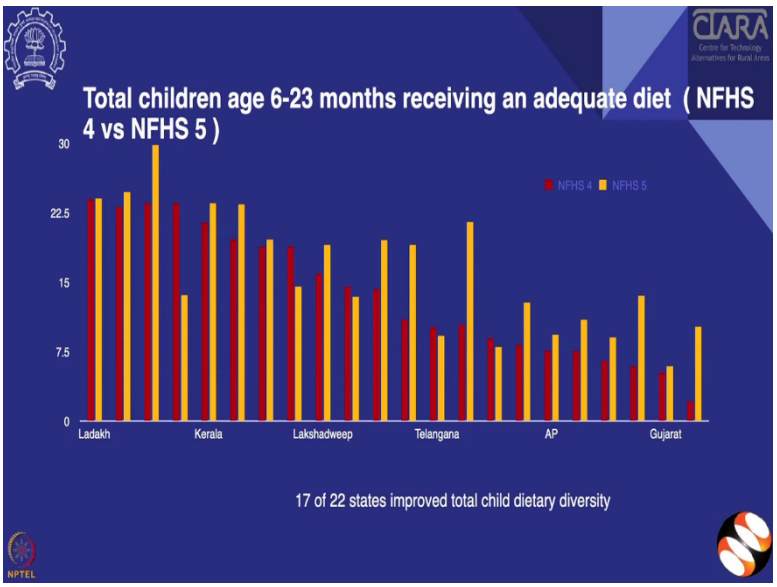

This is basically as you can see, in NFHS 5, 17 out of 22 states have improved total dietary diversity, but we can definitely do better. Again, you can see, most of the states they have about you know, say 20 per cent to between 15 per cent to 22 per cent minimum adequate child in total children.

And of course, look at this different other states like Andhra Pradesh, Gujarat minimum adequate diet is very, very low. So, WHO growth charts. I will be discussing this in in detail in the next session.

I hope you like the first part of the first session. Here I discussed NFHS and NFHS 4 and NHFS 5 data, and I am sure you understood our young children are really undernourished. 30 per cent of them are undernourished, that is quite a lot. In fact, severely malnourished

children who when they are admitted in NRCs. NRCs are basically nutrition and rehabilitation centres, these are centres created by the government to take care of these really malnourished, acutely malnourished children, and those are basically for under 5 years.

But 30 per cent of children who are admitted to these NRCs are under 6 months of age. So, you can imagine how important these first 6 months are. Because one-third of children who are malnourished are from this age group. So that is why I discussed a lot about breastfeeding and kind of stunting, wasting and being underweight under 6 months of age. So, thank you so much. Now, I will be talking about the second part of the first session, and I will see you then. Thanks.