

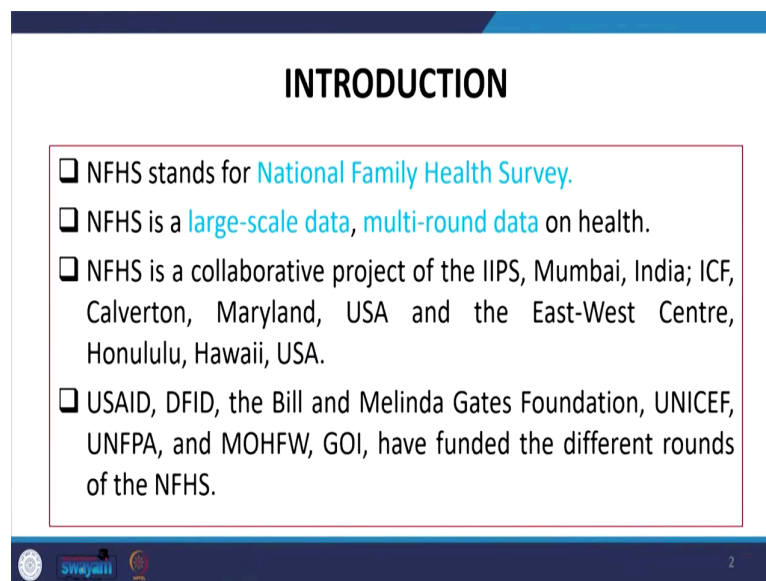
**Exploring Survey Data on Health Care**  
**Prof. Pratap C. Mohanty**  
**Department of Humanities and Social Sciences**  
**Indian Institute of Technology, Roorkee**

**Lecture - 04**  
**Understanding Healthcare Database: NFHS**

Welcome friends to the NPTEL module. We are on the 4th lecture on understanding health issues; here we'll deal with National Family Health Survey data. We will also try to include the latest database, which the national family health survey has released.

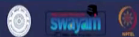
You can also compare this lecture with my earlier module on NPTEL. So, we have to understand the genesis of the national family health survey(NFHS) data; we can write it as NFHS.

(Refer Slide Time: 01:02)



**INTRODUCTION**

- ❑ NFHS stands for **National Family Health Survey**.
- ❑ NFHS is a **large-scale data, multi-round data** on health.
- ❑ NFHS is a collaborative project of the IIPS, Mumbai, India; ICF, Calverton, Maryland, USA and the East-West Centre, Honolulu, Hawaii, USA.
- ❑ USAID, DFID, the Bill and Melinda Gates Foundation, UNICEF, UNFPA, and MOHFW, GOI, have funded the different rounds of the NFHS.




NFHS is a large scale data, multi-round data purely dealing with health care issues. NFHS is born out of collaboration with IIPS(India), ICF(Calverton), Maryland, USA and the East-West Centre, Honolulu, Hawaii, USA.

It also has collaborations with the USAID, DFID, the Bill and Melinda Gates Foundation, UNICEF, UNFPA, Minister of Health and Family Welfare, Government of India, which have funded the different rounds of these NFHS.

(Refer Slide Time: 01:59)

## INTRODUCTION

- ❑ NFHS is conducted in representative sample of households throughout India.
- ❑ NFHS provides information on fertility, infant and child mortality, the practice of family planning, maternal and child health, reproductive health, nutrition, anaemia, and utilization and quality of health and family planning services in India.
- ❑ Till now five rounds of NFHS have been conducted.




3

In the introduction, we mentioned that NFHS is conducted in a representative sample of households throughout India. This gives information on various aspects like fertility, infant and child mortality, the practice of family planning, maternal and child health, reproductive health, nutrition, anaemia and utilization and quality of health and family planning etc. We have five rounds of NFHS conducted; these are presented here with their respective year.

(Refer Slide Time: 02:43)

### Various rounds of NFHS

NFHS Rounds	Time period
NFHS-1	1992-93
NFHS-2	1998-99
NFHS-3	2005-06
NFHS-4	2015-16
NFHS-5	2019-20



4

NFHS-1 was conducted in 1992-93. Then its 2nd one was in 1998-99, the 3rd one was in 2005-06, and after ten years, the 4th round was conducted; recently, we just got the data of

NFHS 5, but not the full-fledged data. The report of the NFHS 5 on 22 states was released in 2021. So, coming to the details of NFHS, how to download these NFHS data?

You have to go to the Demographic and Health Survey (DHS) program website; this is mentioned in this link. All these are free to get, free to download, subject to registration.

(Refer Slide Time: 03:32)

**How to download NFHS data**

- ❑ Visit DHS program website at [www.dhsprogram.com](http://www.dhsprogram.com)
- ❑ All DHS data are free to download and use.
- ❑ Before downloading the data, you must register for data access.

5

(Refer Slide Time: 03:35)

The DHS Program  
Demographic and Health Surveys

Q SEARCH LOGIN Select Language

USAID  
FROM THE AMERICAN PEOPLE

COUNTRIES DATA PUBLICATIONS METHODOLOGY RESEARCH TOPICS

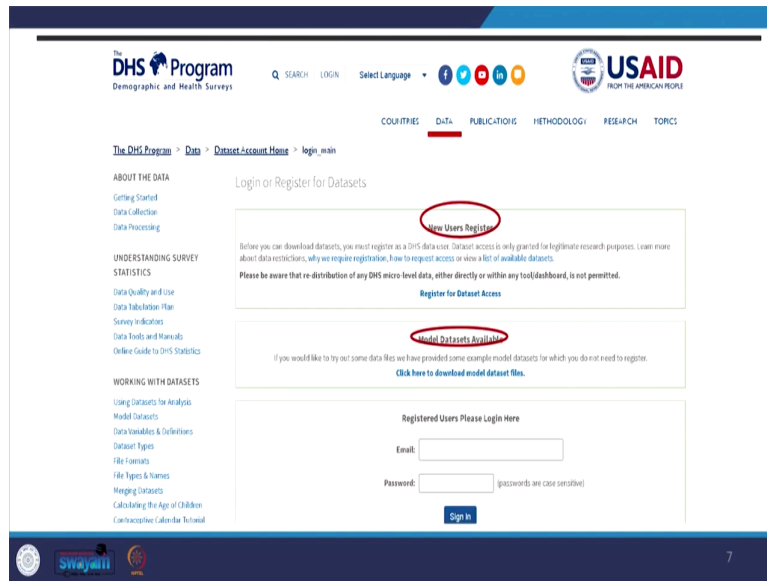
Respond to a quick survey to provide your feedback on our digital tool!  
Participez dans l'enquête d'utilisateurs et partagez vos commentaires!

The Demographic and Health Surveys (DHS) Program has collected, analyzed, and disseminated accurate and representative data on population, health, HIV, and nutrition through more than 400 surveys in over 90 countries.

6

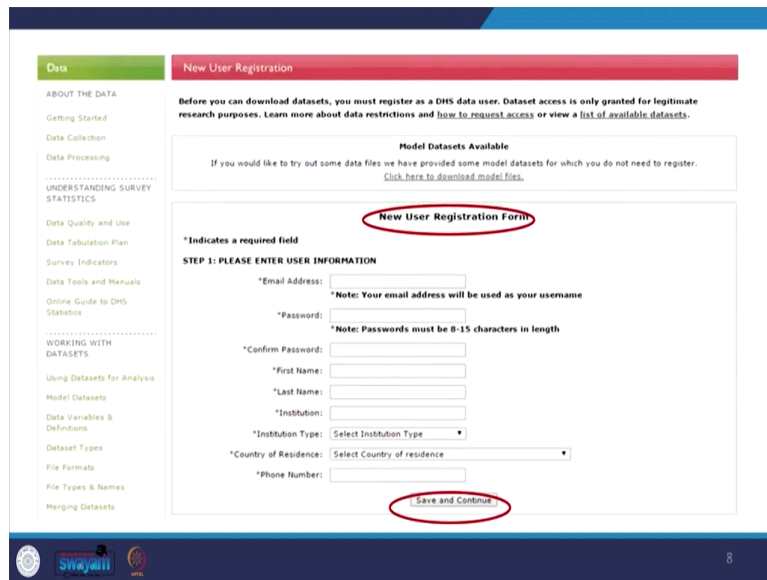
So, this may require, this is the website of the DHS.

(Refer Slide Time: 03:43)



And you are supposed to register as a new register and the model data sets are available here to download.

(Refer Slide Time: 03:54)



So, you are supposed to give your basic details and you will be given information accordingly; these are the way how you can follow.

(Refer Slide Time: 04:01)

The screenshot shows a web interface for 'My Dataset Account'. The user is logged in as 'thedhsprogram@gmail.com'. The main heading is 'Create New Project'. Below this, there is a section for 'Project Information' with the following fields:

- \*Project Title:** A text input field.
- Co-researchers:** Two text input fields, each with a '(1)' or '(2)' label next to it.
- \*Description of Study:** A large text area for a paragraph abstract. Below it, a character count shows 'You have entered 0 number of characters. (Minimum: 300; Maximum: 2500)'.

At the bottom of the form, there are two buttons: 'Cancel' and 'Save and Continue'. The 'Save and Continue' button is circled in red. A note at the top right says '\*Indicates a required field'.

Next is the data set you have to save and continue; give a specific description of what exactly you are working on and they will provide you with the data.

(Refer Slide Time: 04:12)

The screenshot shows the 'Request Datasets for New Project' form. The user is logged in as 'thedhsprogram@gmail.com'. The main heading is 'Request Datasets for New Project' with the sub-heading 'Insecticide-Treated Net Use in Malawi'. There is a link for 'Edit project information'. Below this, there is a message: '\*\*\* Please select a region to display the countries for which you want to request datasets. \*\*\*'. A dropdown menu is shown with the text '\*Choose Region: Select Region'. The dropdown menu is circled in red. Below the form, there are social media icons for Facebook, Twitter, YouTube, LinkedIn, and Instagram. To the right, there is a 'SIGN UP FOR EMAIL ALERTS' button. At the bottom, there is a navigation menu with four columns: 'WHO WE ARE', 'WHAT WE DO', 'DATA', and 'TOPICS'. The page number '10' is visible in the bottom right corner.

In some regions of yours, you can also give it.

(Refer Slide Time: 04:16)

**My Account**  
 Approved Countries  
 Update Contact Information  
 Change Password  
 Change Email  
 Logout

**My Dataset Account**

Alert: You must complete this step to successfully submit your registration.  
**Step 3: Request Datasets for your Project**  
 HEALTH INSURANCE  
 \*\*\* Please select a region to display the countries for which you want to request datasets. \*\*\*  
 \*Choose region: **South & Southeast Asia**  
 Select country datasets then click the "Save Selection(s)" button.  
 If you want to see GPS or HIV/Other Biomarkers datasets click a "Show" hyperlink below.

Show GPS datasets | Show HIV/Other Biomarkers datasets | Select All Surveys | Clear All Surveys

Country	Select Datasets	
	Survey	SPA
Afghanistan	<input type="checkbox"/>	<input type="checkbox"/>
Bangladesh	<input type="checkbox"/>	<input type="checkbox"/>
Cambodia	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<b>India</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Indonesia	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Maldives	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Myanmar	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Country	Select Datasets	
	Survey	SPA
Nepal	<input type="checkbox"/>	<input type="checkbox"/>
Pakistan	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Philippines	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sri Lanka	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Thailand	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Timor-Leste	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Vietnam	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Datasets not available  
 Restricted datasets  
 Denotes availability of Other Biomarker datasets  
 Please hover over icon to see notes.

**Save Selection(s)**

Like this the way, we have guided.

(Refer Slide Time: 04:21)

**The DHS Program**  
 Demographic and Health Surveys

SEARCH | LOGIN | Select Language | USAID FROM THE AMERICAN PEOPLE

COUNTRIES | DATA | PUBLICATIONS | METHODOLOGY | FEES-PAID | TOPICS

The DHS Program > Data > Datasets Account Home

**My Account**  
 Approved Countries  
 Update Contact Information  
 Change Password  
 Change Email  
 Logout

**My Dataset Account**

Alert: You must complete this step to successfully submit your registration.  
**Step 3: Request Datasets for your Project**  
 HEALTH INSURANCE  
 \*\*\* Please select a region to display the countries for which you want to request datasets. \*\*\*  
 \*Choose Region: **Select Region**

If you are done selecting datasets click the "Submit Dataset Request Now" button for processing. Note: The submit button will appear once you accept the conditions of use.

Requested Country Datasets

Country	Survey	GPS	HIV	SPA
India	X			

You have accepted the conditions of use for The DHS Program datasets

**Submit Dataset Request Now**

(Refer Slide Time: 04:27)

Slide 13 contains a list of four bullet points enclosed in a red-bordered box. The first bullet point states that requests for dataset access are typically approved within 24-48 hours. The second bullet point mentions that an email from [archive@dhsprogram.com](mailto:archive@dhsprogram.com) will be received upon approval. The third bullet point notes that this email will provide instructions for downloading data from the website. The fourth bullet point suggests referring to the "Guide to DHS Statistics" for an overview of the structure and use of DHS datasets. The slide footer includes the Swayam logo, the text "Swayam", and the number "13".

- ❑ Request to access datasets are usually approved within 24-48 hours.
- ❑ You will receive an email from [archive@dhsprogram.com](mailto:archive@dhsprogram.com) , once your request has been approved.
- ❑ This email will contain instructions for how to download data from the website.
- ❑ For overview of the structure and use of DHS datasets, one can refer "*Guide to DHS Statistics*"

So, you need to submit this data request and it usually takes you know 24 to 48 hours for approval. You will receive an email from DHS program, whether it has been approved or not; the email will contain instruction for how to download the data from the website. For the overview of the structure and use of DHS data sets, one can refer to the guide to DHS statistics.

(Refer Slide Time: 04:52)

Slide 14 features a list of seven file names for the NFHS 4 survey data, each underlined and with a red checkmark. A large red curly bracket on the right side of the list groups all seven items together. The slide footer includes the Swayam logo, the text "Swayam", and the number "14".

- ❑ If you have downloaded data of NFHS 4 survey you will get seven separate files namely:
  - Household recode
  - Household member recode
  - Individual recode
  - Men's recode
  - Couple's recode
  - Children's recode
  - Birth recode

If you have downloaded the data of the NFHS 4 survey, you will get 7 separate files namely household recode, household member recode, then individual recode, men's recode, couples recode, then children's recode and birth recode.

It is not just giving the raw data; it has also given you certain data that has been labelled. So, that is why they are saying it is recorded and the code has been mentioned or is mentioned in the report or in the schedule file as well.

We are going to deal with all those things for the analysis in health care research and in our successive lectures, we will have stata applications for those data sets. So, mostly we will be using individual recode and household member recode, then children recode, etc; these are most often used by the researchers.

(Refer Slide Time: 06:09)

**NFHS-4**

- ❑ NFHS 4 was designed to provide estimates on important indicators on family welfare, maternal and child health, nutrition, and other health issues.
- ❑ In addition to above it provides information on several new and emerging issues, including use of mosquito nets for malaria prevention, abortions, domestic violence, insurance coverage, ownership of physical and economic assets by women.

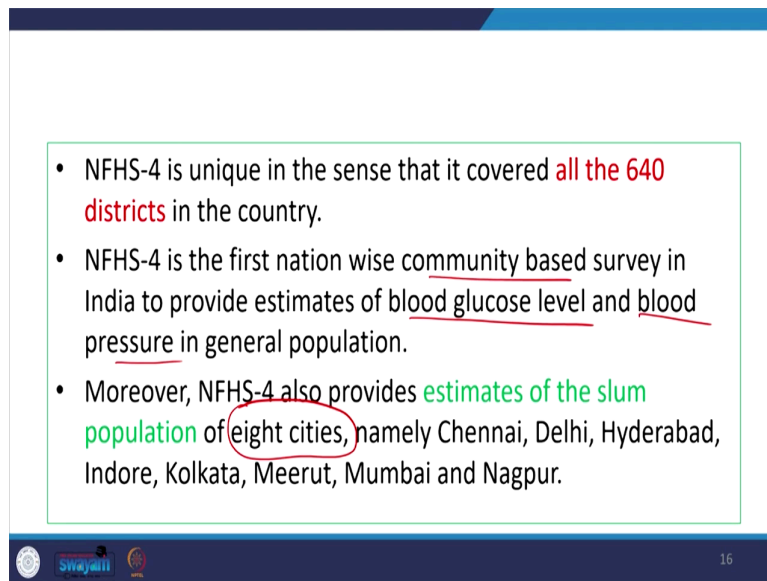
Swajail 15

Then in NFHS 4 it is also required to understand that it was designed to provide estimates on important indicators on family welfare, maternal, child health, nutrition and other health issues.

In addition to the above discussion, this provides information on several new and emerging issues, including the new issues like use of mosquito nets for malaria prevention, abortions, domestic violence, insurance coverage, ownership of physical and economic assets by women. So, these are the new aspects and quite relevant in the new round of study.



(Refer Slide Time: 06:51)

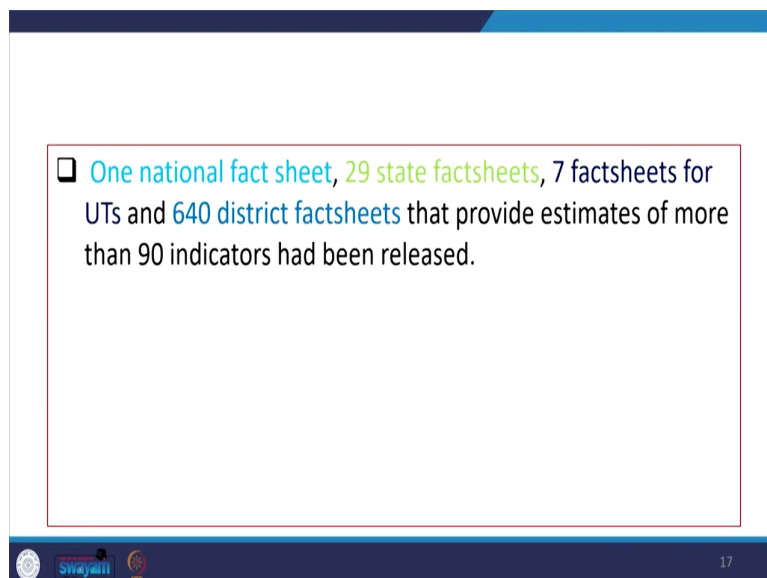


Slide 16 contains a list of three bullet points describing the uniqueness of NFHS-4. The text is enclosed in a green-bordered box. The first bullet point states that NFHS-4 covered all 640 districts in the country. The second bullet point states it is the first nationwide community-based survey in India to provide estimates of blood glucose level and blood pressure in the general population. The third bullet point states it also provides estimates of the slum population of eight cities, specifically Chennai, Delhi, Hyderabad, Indore, Kolkata, Meerut, Mumbai, and Nagpur. The slide footer includes the Swajati logo and the number 16.

- NFHS-4 is unique in the sense that it covered **all the 640 districts** in the country.
- NFHS-4 is the first nation wise community based survey in India to provide estimates of blood glucose level and blood pressure in general population.
- Moreover, NFHS-4 also provides **estimates of the slum population** of **eight cities**, namely Chennai, Delhi, Hyderabad, Indore, Kolkata, Meerut, Mumbai and Nagpur.

NFHS 4 is unique in the sense that it covered all the 640 districts of India including UTs. NFHS 4 is the first nationwide community-based survey in India to provide estimates of blood glucose level and blood pressure in general population. Moreover, the NFHS 4 also provides estimates of the slum population of 8 cities.

(Refer Slide Time: 07:42)



Slide 17 contains a single bullet point enclosed in a red-bordered box. The text states that one national fact sheet, 29 state factsheets, 7 factsheets for UTs and 640 district factsheets have been released, providing estimates of more than 90 indicators. The slide footer includes the Swajati logo and the number 17.

- **One national fact sheet, 29 state factsheets, 7 factsheets for UTs and 640 district factsheets** that provide estimates of more than 90 indicators had been released.

One national fact sheets, 29 states fact sheets, 7 fact sheets for UTs and 640 district fact sheets that provide estimates of more than 90 indicators have been released.

So, this round follows stratified two stage sampling and the sampling frame for the selection of PSUs was from Census 2011.

(Refer Slide Time: 08:22)

• Stratified two stage sampling has been adopted in NFHS-4.

• Sampling frame for the selection of PSUs: **Census 2011**

• Rural PSUs: *Village* and Urban PSUs: *Census Enumeration Blocks (CEBs)*

18

(Refer Slide Time: 08:48)

### Questionnaire

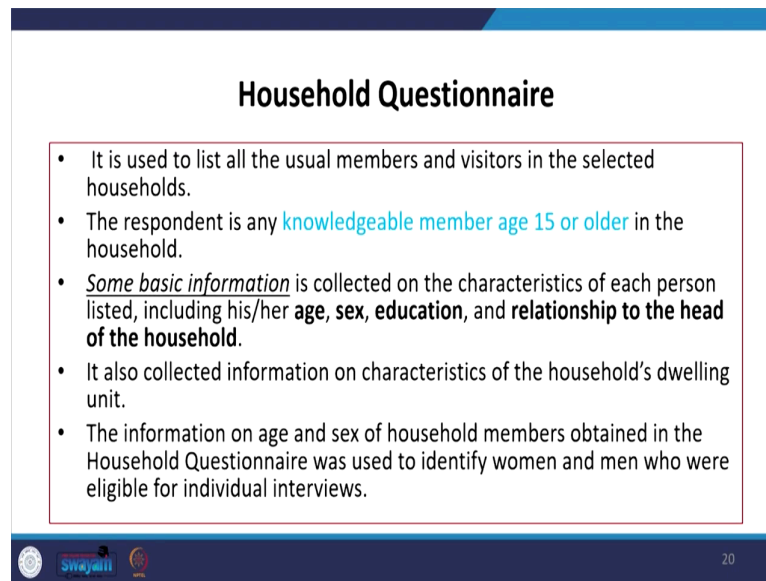
NFHS 4 was conducted using four survey questionnaire:

- Household Questionnaire
- Women's Questionnaire
- Man's Questionnaire
- Biomarker Questionnaire

19

The NFHS 4 was conducted using four survey questionnaire; one is household questionnaire, second one is women questionnaire, then man question, and biomarker questionnaire. Biomarker gives information about BMI index, blood glucose level, and blood pressure level of the individuals etc.

(Refer Slide Time: 09:10)



### Household Questionnaire

- It is used to list all the usual members and visitors in the selected households.
- The respondent is any knowledgeable member age 15 or older in the household.
- *Some basic information* is collected on the characteristics of each person listed, including his/her age, sex, education, and relationship to the head of the household.
- It also collected information on characteristics of the household's dwelling unit.
- The information on age and sex of household members obtained in the Household Questionnaire was used to identify women and men who were eligible for individual interviews.

20

Then the household questionnaire is used to deal with the list of usual members and visitors in the selected households; the visitors who stayed in the last 24 hours in the familiar also asked.

The respondent is any knowledgeable member with age 15 or older in the household. Some of the basic information from the household questionnaire is collected for each person listed, including his/her age, sex, education and relationship to the head of the household.

It also collects information on the characteristics of the household's dwelling unit. The information on age and sex of household members obtained in the household questionnaire was used to identify women and men who were eligible for individual interviews.

(Refer Slide Time: 10:11)

## Women's Questionnaire

- It forms the central part of NFHS questionnaire and covers all the key topics of survey.
- It surveys only women of **reproductive age** (i.e., 15-49).
- This questionnaire includes the following standard sections:  
*Background characteristics, reproduction, contraception, Pregnancy and postnatal care, immunization, child health and nutrition, marriage and sexual activity, fertility preferences, husband's background and women's work, HIV/AIDS, domestic violence and other health issues.*

Coming to the women questionnaire, it collects information of the women in their reproductive age, in their eligible age those are of 15 to 49. The women questionnaire forms the central part of NFHS questionnaire and covers all the key topics of the survey.

The women questionnaire includes the following standard sections like background characteristics, reproduction, contraception, pregnancy, postnatal care, immunization, child health and nutrition, marriage, sexual activity, fertility preferences, husband's background and women's work, HIV AIDS, domestic violence and other health issues.

(Refer Slide Time: 11:14)

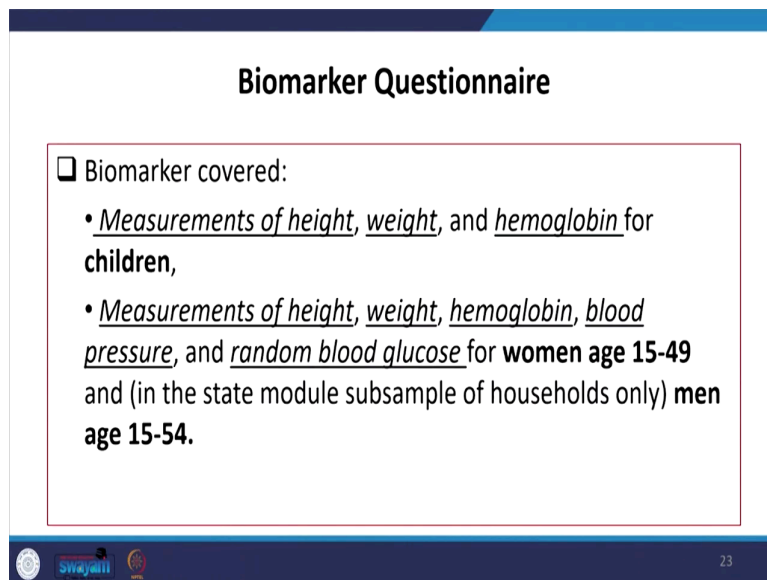
## Men's Questionnaire

- It is similar but shorter than women's questionnaire.
- The respondent of the men's questionnaire is men of **reproductive age (15 to 54)**
- It is used to collect data:  
*background characteristics, reproduction and fertility preferences, contraception, employment and gender roles, HIV/AIDS and other health issues.*

Whereas, the men's questionnaire is a bit shorter than the women's questionnaire; it considers the age of 15 to 54 and that standardization is made along with other country survey for making it comparable. This questionnaire is collecting information about background characteristics, reproduction, fertility preferences, contraception, employment, gender roles, HIV, AIDS and other health issues.

There are biomarker questionnaires as well. Biomarkers are essential for measuring the height, the weight, hemoglobin level, blood pressure, random blood glucose of women age 15 to 49 and (in the state modules of sample of households only) men age 15-54.

(Refer Slide Time: 12:09)



**Biomarker Questionnaire**

Biomarker covered:

- Measurements of height, weight, and hemoglobin for **children,**
- Measurements of height, weight, hemoglobin, blood pressure, and random blood glucose for **women age 15-49** and (in the state module subsample of households only) **men age 15-54.**

23

(Refer Slide Time: 12:19)

Result	Residence		Total
	Urban	Rural	
<b>Household interviews</b>			
Households selected	187,095	441,805	628,900
Households occupied	182,415	433,931	616,346
Households interviewed	175,946	425,563	601,509
Household response rate <sup>1</sup>	96.5	98.1	97.6
<b>Interviews with women age 15-49</b>			
Number of eligible women	213,759	510,116	723,875
Number of eligible women interviewed	204,735	494,951	699,686
Eligible women response rate <sup>2</sup>	95.8	97.0	96.7
<b>Interviews with men age 15-54</b>			
Number of eligible men	39,624	82,427	122,051
Number of eligible men interviewed	35,526	76,596	112,122
Eligible men response rate <sup>2</sup>	89.7	92.9	91.9

This is the one, probably you may not see this table from a distance, but you have to see it closely, this is directly taken from the report of the NFHS 4. This gives results of the household and individual interviews. We wanted to highlight that the total number of the household was interviewed in this round is 61509 and rural representation is much higher than urban.

And then coming to the number of eligible women who were interviewed was around 7 lakhs; that is 699686. So, within the household, men and women are there; the men's coverage is being 112122.

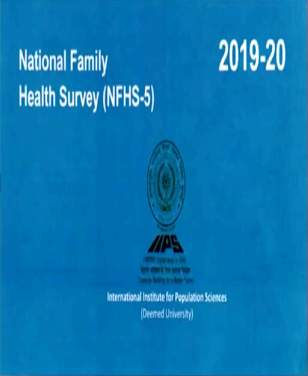
The response rate for the household; whether they have responded or not, was 97.6. Women's response rate was of little lesser, it is of 96.7. Surprisingly, the eligible men's response rate is even lesser than that of the women, the eligible women's response rate is of 91.9.

The response rate can also be understood for rural and urban; the rural response rate of the household is higher than urban and this is not weighted, this is the exact absolute number that was surveyed. So, what is the role of weight and how weight is relevant, we will discuss this in our next lecture.

(Refer Slide Time: 14:41)

## Latest Round of NFHS

- NFHS-5 is the latest round.
- Data for this round is still not available.
- However, state factsheet of 22 states/UTs and their respective districts is available on IIPS website  
“<http://rchiips.org/nfhs/index.shtml>”



25

Coming to the latest round of NFHS that was conducted in 2019-20. This is the latest round and the full-fledged data is not yet available; only the factsheet and the report are available. The factsheet of 22 states and UTs and their respective districts are available on the IIPS website. This is the link you can just browse on it and we will find out for sure.

I wanted to discuss some of the important aspects of the latest round after the understanding of NFHS 4 and there are other rounds. So, I should have mentioned that NFHS 4 round is also at the district level.

(Refer Slide Time: 15:43)

## NFHS-5 (2019-20)

- Like NFHS-4, NFHS-5 also provides district-level estimates for many important indicators
- NFHS-5 includes some new topics, such as preschool education, disability, access to a toilet facility, death registration, bathing practices during menstruation, and methods and reasons for abortion.
- The scope of clinical, anthropometric, and biochemical testing (CAB) has also been expanded to include measurement of waist and hip circumferences, and the age range for the measurement of blood pressure and blood glucose has been expanded.
- HIV testing has been dropped.
- However, estimates of indicators of sexual behaviour; husband's background and woman's work; HIV/AIDS knowledge, attitudes and behaviour; and domestic violence are available only at the state/union territory (UT) and national level.

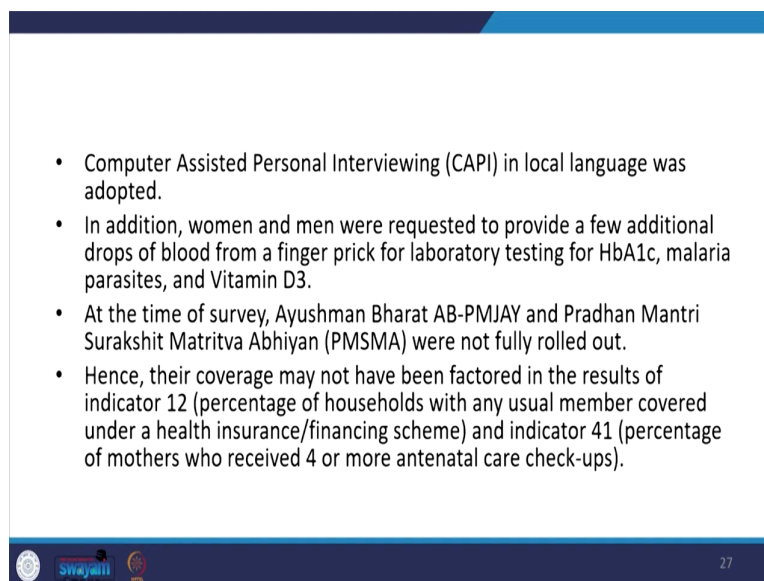
26

So, like NFHS 4, NFHS 5 also provides district-level estimates for many important indicators. NFHS 5 includes some new topics, it gives information on preschool education, disability, access to toilet facilities, death registration, bathing practices during menstruation, and methods and reasons for abortion.

The scope of clinical and anthropometric and biochemical testing (CAB) has also been expanded to include measurement of waist and hip circumference and the age range for the measurement of blood pressure and blood glucose has been also expanded. HIV testing has been dropped from this round onwards.

However, the estimates of indicators of sexual behaviour, husband's background and women's work, HIV/AIDS knowledge, attitudes and behaviour; and domestic violence are also available only at the state/union territory and national level, not at the desegregated level. So, this is the important aspect of NFHS 5.

(Refer Slide Time: 17:06)



- Computer Assisted Personal Interviewing (CAPI) in local language was adopted.
- In addition, women and men were requested to provide a few additional drops of blood from a finger prick for laboratory testing for HbA1c, malaria parasites, and Vitamin D3.
- At the time of survey, Ayushman Bharat AB-PMJAY and Pradhan Mantri Surakshit Matritva Abhiyan (PMSMA) were not fully rolled out.
- Hence, their coverage may not have been factored in the results of indicator 12 (percentage of households with any usual member covered under a health insurance/financing scheme) and indicator 41 (percentage of mothers who received 4 or more antenatal care check-ups).

They have followed the CAPI method, the Computer Assisted Personal Interviewing method and that was translated into the local language. And most importantly, this is derived from the World Bank and they follow it in survey.

And I think it requires geographical positioning as well, it automatically attaches with the positioning; the questionnaire whichever is being asked at the final sampling unit, that



positioning can be mapped from a different location. So, GI information is also available through the CAPI.

In addition, women and men were requested to provide a few additional drops of blood from finger pricks for laboratory testing specially to identify HbA1c, malaria parasites and vitamin D 3 as well.

At the time of the survey, the Ayushman Bharat scheme that is AB - PMJAY, Pradhan Mantri Jan Arogya Yojana, Pradhan Mantri Surakshith Matritva Abhiyan, PMSMA were not since fully rolled out.

So, their coverage may not have been factored in the results of indicators like 12(percentage of households with any usual member cover under a health insurance or financial scheme) and indicator 41(percentage of mothers who received 4 or more antenatal care checkups).

So, these are all the details so far in this particular lecture on NFHS; but whoever was interested to work on the state level or all India level, can compare the data from the first round, that is 1992-93 onwards. In the women's questionnaire, many pieces of information are there for comparison. One thing to be noted in all NFHS is that it does not give information about health expenditure; it does not give information sufficiently on the standard of living.

It gives the information in different brackets, standard of living in different categories; but the desegregated information about your income or expenditure is not exclusively identified in NFHS. Similarly, NFHS is one important point which I have said if you wanted to find out the positioning of the respondents and the local area and their development through certain political angles, political leadership; so their positioning can be also mapped through GIS.

It has given information about their positioning; it also gives information on various anthropometric measures, so those will be very essential for a scientific study. So, these are all for today; if you want more information, you can follow my previous lecture on handling large scale data, which has also included NFHS. This time we have included a little new, that is on NFHS 5.

I am sure this will certainly create demand or create interest in research, but make sure that you have to wait for some lectures; we are going to use STATA software or other software specially STATA to experiment with this data and to get meaningful conclusions.

So, by that time I suggest everyone to get registered in STATA; this time in this module you are now guiding how to register in STATA, you have to go back to my previous module on NFHS, on handling large scale data with STATA.

There we have guided how to download the stata version freely for a certain time, for a very minimum period from the stata office. I think these are all for today for this lecture.

Thank you.