

NATIONAL NUTRITION SURVEY 2001-02

The National Nutrition Survey 2001-02 (NNS), carried out after 17 years, provides a recent benchmark of the health status of the population of Pakistan. The survey is representative at the national as well as regional level and would help in better policy formulation as well as in prioritizing the programs and initiatives at the national, provincial and district levels.

The NNS sample is 10,656 households randomly selected from 700 Primary Sampling Units (PSUs). The survey design was prepared by the Federal Bureau of Statistics and the sample has been drawn from all the parts of the country including Northern Areas (NAs) and Azad Jammu & Kashmir (AJ&K). A total of 16 households from rural areas and 14 households from urban areas in each PSUs having children under five years of age were chosen on the basis of systematic sampling. A total of 42 teams headed by a medical doctors were raised at the national level and were distributed among 16 geographic regions. Each region was supervised by a regional coordinator who also carried out internal monitoring of the teams. The survey equipments for anthropometric measurements, iodine and hemoglobin testing and biochemical samples collection were provided by the sponsoring agency, the UNICEF. The cold chain system operation of the survey was fully backed up the National Cold Chain System of the Immunization programme (EPI).

The fieldwork started in September 2001 and was completed by the end of October 2001. This was preceded by an intense training of the field staff. The survey comprised four modules including household questionnaire; clinical and biochemical questionnaire and dietary result form. The specific information was collected from mothers and their children under five years of age. The household and individual information on the knowledge, attitude and practice of macro as well as micronutrients, child feeding practices, and food intake by mothers and children below five years of age was gathered by female enumerators. The clinical aspect of the survey was administered by the medical doctors.

The survey collects information on vitamin A, iodine and iron deficiencies and prevalence of morbidity among children. The anthropometrics of mothers and their children under five years of age was performed by Lady Health Visitors (LHVs) in the presence of the doctor. Apart from clinical examination of physical symptoms of various types of deficiencies, bio-chemical samples were collected from mothers, children under five years of age for tests on serum retinal, serum ferritin and zinc by doctors supported by trained laboratory

technicians. The urine samples were also collected from mothers and school-age children of 6 to 12 years of age to test for iodine deficiency.

The findings of the study are presented to gauge the extent of malnutrition among mothers, adolescents and young children. The anthropometric measures, clinical and sub clinical evidence are used to estimate the extent of malnutrition among these groups. The results also shed light on iodine deficiency disorders (IDD), vitamin A deficiency, iron deficiency, and anemia among vulnerable groups and child feeding practices. The effect of different factors on the nutritional status of mothers and their children are also presented.

The households are largely headed by males, the proportion is 98.7 percent. The literacy level of the head of households turns out to be 62.1 percent and only 7.7 percent were unemployed. An overwhelming proportion of them are employees or self-employed, a majority of them were unskilled workers followed by the farmers and traders. The source of drinking water is largely from taps followed by hand pumps and motor pumps. However, these facilities are at lesser in scale in rural areas where hand pumps (34 percent) are reportedly larger source of drinking water. The survey identifies the index mothers and child in the household. The average age of the index mother is less than 30 years with literacy level around 36 percent. Most of them were currently married and 13.7 percent of them were pregnant at the time of survey.

The dietary survey sheds light on the meal patterns in the country, frequency of the consumption of different food items and their average daily consumption. The food intake is converted into its nutrients to measure the caloric intake of different groups. In Pakistan, three meals namely breakfast, lunch and dinner are taken daily. Breakfast consists of paratha/roti made with wheat flour and tea/lassi/milk. In lunch and dinner, roti is the principal food taken with curry made of vegetable, meat or dal. Whereas 84% households take daily roti/wheat bread, 69% families reported consumption of meat once or-more than once a week, 66% chicken in a week, 74% used vegetable at least once a week.

Main foods consumed by children are milk, boiled egg, roti and meat and wheat bread and rice are the two main cereals taken by mothers in Pakistan. The sugar consumption is low whereas pulses consumption is quite high. The daily per capita consumption of green leafy vegetable and fruit by mother is 57.5 grams and 23.8 grams. The ghee/oil consumption is estimated as 27.9 gram/day. Consumption of tea is quite high among mothers and children in Pakistan.

The findings of the present survey indicate that the calories consumption of fifty percent of mothers is less than Recommended Daily Allowance (RDA). The iron intake of mother and their children is also low. This deficiency is the result of low intake of wheat, oil/fats, sugar and meat. These deficiencies prevail in urban and rural areas.

About 26 percent women reported interval length of one hour between birth and breast milk given to infants. Majority of them, however, reported giving milk to infants the same day they were born, followed by 23 percent of women who reported an interval of two days or more in putting the infant to breast milk. Very small percentage of women, about 13 percent reported giving mother's milk within 24 hours of the birth. A Large proportion of mothers, approximately 83 percent reported the duration of exclusive breast-feeding to infants. As regards the knowledge and practice of breast-feeding, approximately 59 percent women believe that it prevents child from diseases followed by better growth of the child. Majority of the mothers continued breast-feeding as long as it was necessary but 13 percent women indicated pregnancy as the cause of discontinuation.

Malnutrition estimates of less than -2 SD z-scores indicators reveal a continuously high prevalence of underweight, stunting and wasting which respectively are 37.8 percent, 37.0 percent and 13.2 percent. Malnutrition levels are higher in rural areas except the incidence of wasting which is higher in urban areas. Whereas 50 percent of children under 5 years of age had hemoglobin below 11 $\mu\text{gm}/1$, nearly 29 percent of children suffered from conjunctiva pallor. The evidence of Bitot's Spots was among 1.2 percent of children, Corneal Xerosis 0.2 percent, corneal scars 0.2 percent, conjunctival xerosis 0.9 percent and kertomalacia among 0.1 percent of children under five years of age. The malnutrition among mothers on the basis of body mass index (BMI) was 21 percent. The malnutrition was severe among 3.6 percent of the sample of over ten thousand respondents. Hemoglobin test performed on mothers confirmed severe anemia among 50 percent of non-pregnant mothers. The severe iron deficiency anemia based on sub-clinical assessment was, however, found among 9.2 percent mothers. The magnitude of severe anemia among adolescents was only 0.9 percent whereas the level of severe IDA was 2 percent among pre-school children.

An equally important objective of the survey was to determine the level of deficiency of essential micronutrients including iodine, vitamin A, iron and zinc among children, adolescents and mothers. The survey reveals a high level of knowledge about iodized salt but a low level of use because of price, availability and adverse propaganda. Testing of the domestic salt for iodine

revealed a high level of cheating as ordinary salt is being sold as iodized salt. The prevalence of goitre among women in Pakistan was found to be 21 percent at the national level: 24 percent in rural areas and 16 percent in urban areas. The areas where the prevalence of goitre is higher is the endemic belt of Northern Areas where 34 percent women were found having goitres followed by 28 percent in Azad Jammu & Kashmir, 27 percent in the NWFP and 21 percent in Punjab. Balochistan and Sindh revealed lower prevalence rates of goitre. The prevalence of goitre among school-age children was 6.7 percent. The urinary iodine test results reveal that about 36.5 percent mothers were having severe iodine deficiency. The problem is relatively more pronounced in rural areas as 41 percent mothers were having severe iodine deficiency as compared to 27 percent in urban areas. The severe iodine deficiency is also detected among 23 percent pre-school children. The sub-clinical prevalence of iodine deficiency is showing even adverse situation of the iodine deficiency in the country.

The incidence of current night blindness among women was found to be at around 10 percent at the national level. Almost similar magnitude of night blindness is found in both the urban and rural areas. The provinces of NWFP and Sindh experienced higher percentage of night blindness than other provinces. The knowledge of vitamin A is found to be low because at the national level, only about 39 percent women reported that it is beneficial for the eyes and 45 percent of them reported that vitamin A is better for child growth. The knowledge on sources of vitamin A rich foods is also low. The biochemical analysis of the serum retinol also confirms that Vitamin-A deficiency is not very high among mothers and children. However, zinc deficiency is an emerging public health problem as about 20.6 percent children were having zinc levels below 60 ug/dl in Pakistan. Zinc deficiency is not found very high among mothers as only 2.26 percent mothers at national level were zinc deficient.

Approximately 16 percent women are taking iron supplements and out of these around 21 percent take them on regular basis. Approximately 77 percent women feel that iron supplements increase the blood and 33 percent that it increases strength. However, the knowledge of benefits is not matched with the knowledge of foods rich in iron. About 37 percent women are of the view that Dark Green Leafy Vegetables (DGLV) are a major source of iron and 29 percent feel that meat is an iron The responses to occasional use or those who took it when they felt weak are higher at about 37 and 33 percent respectively rich food.

The morbidity and mortality is high in Pakistan; fever and watery diarrhea are common with higher occurrence in the rural areas. The other signs of deficiencies of different micronutrients were prevalent among children.

Using the logistic regression correlated of malnutrition of children below 5 years of age has been explored. All the three nutritional status indicators are alternately taken as the dependent variables and age, age at first food, maternal factors, housing environmental factors and vitamin A intervention factors as independent variables. The results of the regression indicate that the risk of malnutrition rises significantly for children 12-35 months of age in all the three nutritional indicators. The underweight and stunting show an increase by age while wasting declines by age. The risk of malnutrition is lower for the children given food earlier than one year. The stunting shows decline with mother's age. The risk of malnutrition increases for the children of older mother. The sanitation is found to be important factor for reducing the risk of malnutrition. Diarrhea appeared to be the significant contributor of malnutrition in all three types of malnutrition indicators. The Vitamin-A intervention is found to be very significant factor- for reducing malnutrition among children.