



सत्यमेव जयते

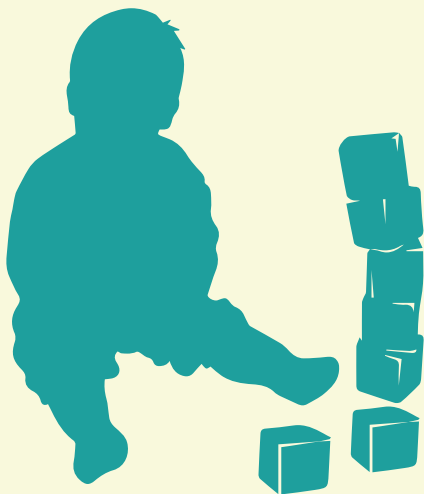
Ministry of Health and Family Welfare
Government of India



Comprehensive National Nutrition Survey

2016 – 2018

Key Findings



CINNS
Birth to Adolescence

Chapter 1 Introduction and Objectives

The Comprehensive National Nutrition Survey (CNNS) is the first ever national nutrition survey to provide national and state level representative estimates from biological samples (blood, urine and stool) for micronutrient deficiencies and non-communicable diseases (NCDs) using robust tools, best practices in training and field and gold standard laboratory methods.

The main objective of the CNNS was to collect nationally representative data on the nutritional status of pre-schoolers (0–4 years), school-age children (5–9 years) and adolescents (10–19 years) through interviews, comprehensive set of anthropometric measures and biochemical indicators. The aim was to estimate the prevalence of malnutrition among children and adolescents and to identify key factors associated with the nutrition transition in India to guide national programme and policy. The specific objectives of the CNNS were:

- to assess the extent and severity of micronutrient deficiencies among children and adolescents
- to assess risk factors for non-communicable diseases among school-age children and adolescents
- to estimate the prevalence of dual burden of malnutrition in children and adolescents using a comprehensive set of established anthropometric measures

Chapter 2: Methods

Key findings

The Comprehensive National Nutrition Survey (CNNS) India 2016–18 is the largest micronutrient survey ever conducted and included the following:

- 112,316 children and adolescents interviewed with anthropometric measures collected
- Blood, urine and stool samples drawn from 51,029 children and adolescents
- 2,500 survey personnel in 30 states
 - 200 trainers and coordinators
 - 900 interviewers
 - 360 anthropometric measurers
 - 360 survey supervisors and quality observers
 - 100 data quality assurance (DQA) team members
 - 360 phlebotomists
 - 200 laboratory workers
 - 30 microscopists

Chapter 3: Characteristics of the study sample

Key findings

- The Comprehensive National Nutrition Survey (CNNS) collected data for three population groups from 30 states in India:
 - 38,060 pre-schoolers aged 0–4 years
 - 38,355 school-age children aged 5–9 years
 - 35,830 adolescents aged 10–19 years
- Less than half of mothers of children and adolescents were exposed to any mass media in 5/9 Empowered Action Group (EAG) states (Assam, Bihar, Jharkhand, Rajasthan, Uttar Pradesh) and Meghalaya
- The majority (~ 80%) of respondents were Hindus, followed by Muslims (16%), Christians (3%) and Sikhs (1%)
- More than 50% of adolescents in Bihar, Jharkhand and Madhya Pradesh were from poorest wealth quintile households

Chapter 4: Infant and young child feeding and diets

Key findings

Initiation of breastfeeding

- Fifty-seven percent of children aged 0–24 months were breastfed within one hour of birth

Exclusive breastfeeding

- Fifty-eight percent of infants under age six months were exclusively breastfed

Continued breastfeeding at age one year

- Eighty-three percent of children aged 12 to 15 months continued breastfeeding at one year of age

Complementary feeding

- Timely complementary feeding was initiated for 53% of infants aged 6 to 8 months

Minimum dietary diversity, meal frequency and acceptable diet

- While 42% of children aged 6 to 23 months were fed the minimum number of times per day for their age, 21% were fed an adequately diverse diet and 6% received a minimum acceptable diet

Food consumption among school-age children and adolescents

- More than 85% consumed dark green leafy vegetables and pulses or beans at least once per week
- One-third consumed eggs, fish or chicken or meat at least once per week 60% consumed milk or curd at least once per week

Chapter 5: Anthropometric status of children and adolescents

Key findings

Malnutrition in pre-school children (0–59 months)

35% of children under five were stunted (HAZ <-2 SD)

17% of children under five were wasted (WHZ <-2 SD)

33% of children under five were underweight (WAZ <-2 SD)

11% of children 6–59 months were acutely malnourished as measured by MUAC (MUAC-for-age <-2 SD)

- 5% of children 6–59 months were acutely malnourished as measured by absolute MUAC (MUAC <125mm)
- 2% of children under five were overweight or obese (WHZ >+2 SD)
- 1% of children under five were overweight as measured by triceps skinfold thickness (TSFT) (TSFT-for-age >+2 SD)
- 2% of children 1 to 4 years were overweight as measured by subscapular skinfold thickness (SSFT) (SSFT-for-age >+2 SD)

Malnutrition in school-age children (5–9 years)

- 22% of school-age children were stunted (HAZ <-2 SD)
- 10% of school-age children were underweight (WAZ <-2 SD)
- 23% of school-age children were thin (BMI-for-age <-2 SD)
- 4% of school-age children were overweight or obese (BMI-for-age >+1 SD)
- 2% of school-age children were overweight as measured by TSFT (TSFT for-age >+1 SD)
- 8% of school-age children were overweight as measured by SSFT (SSFT for-age >+1 SD)
- 2% of school-age children had abdominal obesity (waist circumference for-age >+1 SD)

Malnutrition in adolescents (10–19 years)

- 24% of adolescents were thin for their age (BMI-for-age <-2 SD)
- 5% of adolescents were overweight or obese (BMI-for-age >+1 SD)
- 4% of adolescents were overweight as measured by TSFT (TSFT-for-age >+1 SD)
- 6% of adolescents were overweight as measured by SSFT (SSFT-for-age >+1 SD)
- 2% of adolescents had abdominal obesity (waist circumference-for-age >+1 SD)

Chapter 6: Anaemia and iron deficiency

Key findings

- Forty-one percent of pre-schoolers, 24% of school-age children and 28% of adolescents were anaemic
- Anaemia was most prevalent among children under two years of age
- Female adolescents had a higher prevalence of anaemia (40%) compared to their male counterparts (18%)
- Anaemia was a moderate or severe public health problem among preschoolers in 27 states, among school-age children in 15 states, and among adolescents in 20 states
- Thirty-two percent of pre-schoolers, 17% of school-age children and 22% of adolescents had iron deficiency (low serum ferritin)
- Female adolescents had a higher prevalence of iron deficiency (31%) compared to male adolescents (12%)
- Children and adolescents in urban areas had a higher prevalence of iron deficiency compared to their rural counterparts

Chapter 7: Micronutrients

Key findings

- The prevalence of vitamin A deficiency was 18% among pre-school children, 22% among school-age children and 16% among adolescents
- Vitamin D deficiency was found among 14% of pre-school children, 18% of school-age children and 24% of adolescents
- Nearly one-fifth of pre-school children (19%), 17% of school-age children and 32% of adolescents had zinc deficiency
- The prevalence of vitamin B12 deficiency was 14% among pre-school children, 17% among school-age children and 31% among adolescents
- Nearly one-quarter (23%) of pre-school children, 28% of school aged children and 37% of adolescents had folate deficiency
- Adequate iodine status (median urinary iodine concentration ≥ 100 $\mu\text{g/L}$ and ≤ 300 $\mu\text{g/L}$) was observed in all three age groups - 213 $\mu\text{g/L}$ among pre-school children, 175 $\mu\text{g/L}$ among school-age children and 173 $\mu\text{g/L}$ among adolescents
- Children and adolescents in all states, except Tamil Nadu had adequate levels of urinary iodine concentration. The estimate from Tamil Nadu showed the urinary iodine concentration was just at the lower limit of excess intake (median ~ 320 $\mu\text{g/L}$)

Chapter 8: Markers of non-communicable diseases

Key findings

- There is a growing risk of non-communicable diseases among children aged 5 to 9 years and adolescents aged 10–19 years in India
- One in ten school-age children and adolescents were pre-diabetic with fasting plasma glucose >100 mg/dl & ≤ 126 mg/dl or with glycosylated haemoglobin (HbA1c) between 5.7%–6.4%
- One percent of school-age children and adolescents were diabetic with fasting plasma glucose >126 mg/dl
- Three percent of school-age children and 4% of adolescents had high total cholesterol (≥ 200 g/dl) and high low-density lipoprotein (LDL) (≥ 130 mg/dl)
- One-quarter (26%) of school-age children and 28% of adolescents had low high-density lipoprotein (HDL) (<40 mg/dl)
- One-third (34%) of school-age children (≥ 100 mg/dl) and 16% of adolescents (≥ 130 mg/dl) had high serum triglycerides
- Seven percent of school-age children and adolescents were at risk for chronic kidney disease (serum creatinine > 0.7 mg/dl for 5–12 years and 1.0 mg/dl for ≥ 13 years)
- Five percent of adolescents were classified as having hypertension (systolic blood pressure >139 mmHg or diastolic blood pressure >89 mmHg)



The Comprehensive National Nutrition Survey

(CNNS) is the first ever national nutrition survey covering over 110,000 pre-schoolers, school-age children, and adolescents in rural and urban areas across 30 states of India.

The CNNS provides national and state level representative estimates from biological samples (blood, urine and stool) for micronutrient deficiencies and non-communicable diseases (NCDs) using best practices in training and field and gold standard laboratory methods.

The survey was conducted with generous financial support from

Aditya and Megha Mittal

and technical support from



Partners



Ministry of Health & Family Welfare
Government of India
Child Health Division
Nirman Bhavan, New Delhi 110 108
Telephone: 011 – 23061334, 23063398
Email: chmohfw@gmail.com

UNICEF
Nutrition Section
73 Lodi Estate
New Delhi 110 003
Telephone: 011 – 24690401, 24691410
Email: ind.cnns@unicef.org

See CNNS results online: www.NutritionINDIA.info