

IDSP-NCD Risk Factor Survey

Fact Sheet - India Phase - I States

State	AP	MP	MH	MZ	KE	TN	UTK
Population							
Household surveyed	4905	4998	4997	4569	4430	4799	4932
Individual surveyed	6218	5853	6091	4495	4859	5105	5443
Household Characteristics (%)							
Religion							
Hindu	82	92	86	2	56	89	88
Muslim	7	6	9	1	23	5	11
Christian	11	1	1	92	20	6	1
Access to piped drinking water (%)	75	26	82	69	24	86	65
Urban	94	69	97	86	42	84	85
Rural	68	10	71	49	18	87	58
Sanitation (%)							
Flush Toilet	47	15	54	64	92	43	33
Urban	89	48	73	87	97	74	76
Rural	32	2	38	36	90	19	18
Source of Lighting (%)							
Electricity	93	68	93	94	95	93	75
Urban	99	97	95	99	97	96	99
Rural	91	57	92	88	94	90	67
Type of House (%)							
Pucca House	54	23	37	17	67	73	58
Urban	70	60	56	24	73	86	90
Rural	49	10	21	4	64	62	47
Kachha House	19	52	14	24	7	14	14
Urban	5	18	35	9	23	5	2
Rural	24	64	61	42	27	21	18
Fuel use for Cooking (%)							
LPG/Gas	31	19	54	64	38	37	36
Urban	72	59	85	91	53	62	82
Rural	17	4	28	33	33	19	20
Wood	65	72	41	34	61	57	57
Urban	21	33	8	7	46	26	13
Rural	81	87	68	66	66	80	72
Individual Characteristics (%)							
Education -Illiterate	45	44	24	9	10	33	26
Urban (Male)	17	12	6	2	5	15	9
Urban (Female)	36	32	18	3	11	28	22
Rural (Male)	41	37	24	11	6	30	17
Rural (Female)	64	71	48	20	16	53	44
Behavioural Information (%)							
Current Tobacco users							
Smokers	18	22	10	44	13	14	20
Male	32	41	16	67	27	27	35
Female	4	1	3	19	0.2	*	5
Smokeless tobacco users	9	39	33	51	5	11	12
Male	14	54	41	47	7	14	21
Female	5	23	24	55	3	8	2

State	AP	MP	MH	MZ	KE	TN	UTK
<i>Any form of Tobacco use</i>	24	47	37	68	16	22	28
Male	39	68	48	76	29	36	48
Female	8	23	24	60	3	8	7
Mean age of Initiation (in years)							
Smoking	19	19	20	17	20	20	19
Male	19	*	20	17	20	20	19
Female	14	19	20	19	*	*	19
Smokeless tobacco	20	20	20	18	20	20	20
Male	20	20	20	17	19	20	20
Female	23	15	20	18	*	20	20
Alcohol Consumption (%)							
Consumed Alcohol (last 30 days)	14	14	10	6	11	11	12
Male	27	24	16	11	24	21	24
Female	2	3	3	1	*	*	*
Consumed Alcohol (last 12 Months)	20	19	14	11	18	15	16
Male	37	33	24	21	36	30	32
Female	3	4	3	1	*	0.1	*
Consumed alcohol (%) (in last 7 days)							
<i>Binge Drinkers</i>	23	13	7	9	11	47	52
Male	24	14	7	8	11	47	52
Female	11	4	3	*	*	*	*
Mean age of Initiation Alcohol (in years)							
Male	20	20	21	21	22	21	21
Female	15	18	21	23	26	*	*
Fruits and Vegetables consumed(%)							
<i>Less than five servings per day</i>	88	83	76	85	87	99	89
Urban	86	71	74	79	82	98	88
Rural	90	88	77	91	92	99	89
Physical Activity (%)							
<i>Low Physical Activity</i>	68	42	81	71	76	66	67
Urban	78	68	86	79	79	71	92
Rural	64	32	77	63	75	62	58
Hypertension (%)							
<i>Pre hypertension</i>	43	47	47	58	47	43	46
Urban	46	45	50	62	48	44	45
Rural	41	46	45	54	46	42	47
<i>Stage I and II hypertension</i>	20	24	24	19	24	20	21
Urban	20	27	21	20	24	22	25
Rural	21	23	26	19	23	19	18
Physical Measurement - BMI (%)							
<i>Under weight</i>	23	39	23	14	16	25	28
Urban	18	27	18	13	14	18	19
Rural	27	44	27	16	16	30	32
<i>Over weight (grade I,II,III)</i>	13	8	13	10	27	23	14
Urban	17	20	17	12	31	32	27
Rural	10	4	10	9	26	15	9
<i>Central Obesity</i>	14	11	14	12	43	25	18
Urban	19	22	19	8	45	33	33
Rural	10	7	10	16	42	18	12

AP: Andhra Pradesh, MP: Madhya Pradesh, MH: Maharashtra, MZ: Mizoram, KE: Kerala, TN: Tamil Nadu, UTK: Uttarakhand
 *figure not shown, based on fewer than 25 unweighted cases

Summary

Introduction

The Government of India through the Ministry of Health & Family Welfare (MOHFW) initiated a decentralized, state based Integrated Disease Surveillance Project (IDSP) in the country with the assistance of the World Bank in the year 2004. The component of non-communicable disease surveillance planned periodic community based surveys of population aged 15-64 to provide data on the risk factors. It is in line to help the state health administrators to plan strategies for the control of non-communicable diseases by modifying the risk factors. All Indian states were proposed to be surveyed in a phased manner under the project. The first phase of the survey included seven states namely Andhra Pradesh, Kerala, Madhya Pradesh, Maharashtra, Mizoram, Tamil Nadu and Uttarakhand.

The overall objective of the NCD risk factors survey was to improve the information available to the Government health services and care providers on a set of high-priority risk factors, with a view to improve the quality health care and services. The survey also aimed to establish the baseline database of NCD risk factors needed to monitor trends in population health behavior and risk factors for chronic diseases over time. This would provide evidence for evolving strategies and interventions for identified risk factors in the community to reduce the burden of non-communicable diseases.

A National Technical Advisory Committee was constituted to provide the technical guidance to the survey and a National Monitoring Committee was formed for monitoring the overall progress of the project. Indian Council of Medical Research was the implementing agency while the National Institute of Medical Statistics (NIMS) was appointed as the National Nodal Agency (NNA) for coordinating the survey. Five

medical institutes/colleges were selected as a Regional Resource Centre (RRC) for monitoring the quality of data collection and technical support to State Survey Agency (SSA) of seven states selected in the first phase for conducting the survey.

Survey Methodology

WHO STEPS methodology for NCD Risk Factor Surveillance has been adopted for the survey after carrying out suitable modifications, based on a multi-site ICMR-WHO collaborative initiative for NCD risk factor surveillance¹. The survey was designed to provide prevalence estimates of risk factors for each 10 years age group (15-24 through 55-64) by sex (male/female) and place of residence (urban/rural). The survey used uniform sample design, bilingual schedules (English and the regional language of the state concerned), field protocol for data collection and physical measurements to facilitate comparability across states and also to ensure high quality data. For the present survey, appropriate sampling weights for households were used for urban and rural areas of the state. From each selected household one member aged 15-54 was selected using the KISH Method and all members aged 55-64 were selected. Such post stratification was used for improvement of efficiency of the estimators. For each state, post stratification weights for individuals were constructed using the age distributions by sex.

Two types of questionnaires - one at household level and another for individual level were used for the survey. At household level, information was elicited on religion, household facilities, ownership of agricultural land and livestock, and possession of durable goods for each selected household. The Individual questionnaire collected information from the selected individuals regarding

demographic, behavioral and physical measurements. The individual questionnaire was divided into two segments based on WHO STEP methodology. The first section (Step-1) collected the demographic information of individuals including age, sex, marital status, education, and occupation. In the behavioural information section, information about tobacco use, alcohol consumption, diet, physical activity, history of raised blood pressure and history of diabetes were collected. In the second section (Step-2), physical measurements of individual such as height, weight, waist circumference (not measured for pregnant women), blood pressure, and pulse rate were recorded.

Characteristics of Survey Population

A total of 5000 households were contacted in urban and rural area of each of the seven states. The overall household response for the survey ranged from 88.6% in Kerala to 99.9% in Madhya Pradesh and Maharashtra. More than four-fifth (82%) of the households were Hindu in all the states except Mizoram and Kerala. In Mizoram, 92% of the households were Christian whereas in Kerala, 56% were Hindu, 23% Muslim and 20% Christian.

Four in every five households in Andhra Pradesh, Maharashtra, Uttarakhand and Tamil Nadu used drinking water from a piped or hand pump whereas 73% of households in Madhya Pradesh, 70% of households in Mizoram and 28% of households in Kerala used such drinking water. Almost all the households in the seven states under study had flush or pit toilet facility. More than 90% of households in all the states except Madhya Pradesh and Uttarakhand had electricity as the main source of lighting. Three quarter households

in Uttarakhand and more than two third households in Madhya Pradesh, had electricity as main source of lighting. More than half of the households in Maharashtra and Mizoram were using LPG as cooking fuel and in rest of the states it varied from a low 19% of households in Madhya Pradesh to a high 38% in Kerala. The use of wood as cooking fuel was prevalent in 72% of households in Madhya Pradesh, 65% of households in Andhra Pradesh, 61% of households in Kerala and 57% of households Uttarakhand and Tamil Nadu. Over half of the households in Madhya Pradesh and Uttarakhand had own agricultural land. However, It was only 15% in Kerala and 30-40% in rest of the states.

The percentage of illiterate respondents ranged from a low 9% in Mizoram to a high 45% in Andhra Pradesh. Between 67-77% of the respondents were currently married in all the states except Mizoram where it was only 53%. Majority of the respondents in all the states were engaged in agriculture, domestic or manual work.

Behavioural Risk Factors for NCD

Tobacco Smoking

As per the WHO STEPS guidelines, the smokers are presented into the categories

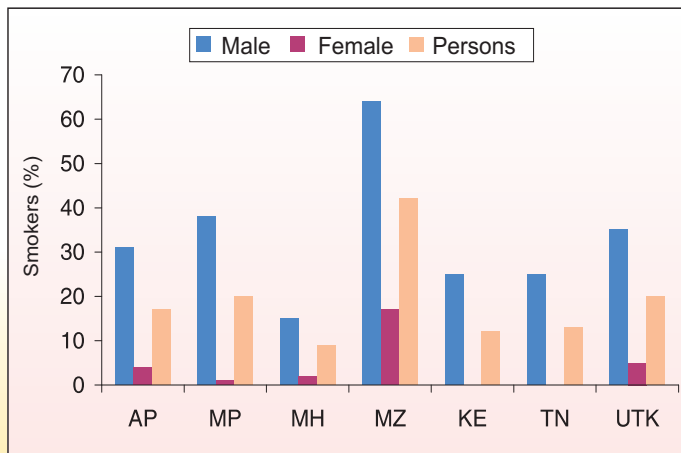


Figure 1. Current daily smokers (%) by sex and phase-I states

of Current Smokers, Current Daily Smokers, Past Daily Smokers and those who have never smoked in lifetime are classified as Non-Smokers. The percentage of current daily smokers varied between a low 9% in Maharashtra and high 42% in Mizoram.

The mean number of smoking *beedis* ranged from a low of 3 in Maharashtra to a high of 14 in Uttarakhand. The mean number of smoking manufactured cigarette in a day was low in Madhya Pradesh (<1) and a high 11 in Mizoram. The average age of onset of smoking ranged from 17 years in Mizoram to 20 years in Maharashtra, Kerala and Tamil Nadu and in rest of the states it was 19 years.

In Andhra Pradesh, Kerala, Tamil Nadu and Uttarakhand, 4-12% respondents were current daily users of smokeless tobacco. In rest of the states, it ranged from 32-48%. The mean frequency of chewing tobacco in a day ranged from less than 1 in Kerala and Andhra Pradesh to 10 in Mizoram. The mean frequency of chewing pan with tobacco ranged from a low <1 in Madhya Pradesh and Maharashtra to a high 9 in Mizoram. The mean age of initiation of smokeless tobacco use was 18 years in Mizoram and 20 years in rest of the states among young respondents (15-34 years).

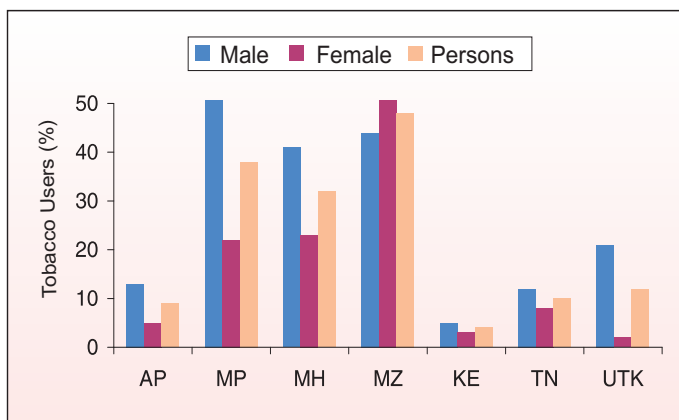


Figure 2. Current smokeless tobacco users (%) by sex and phase-I States

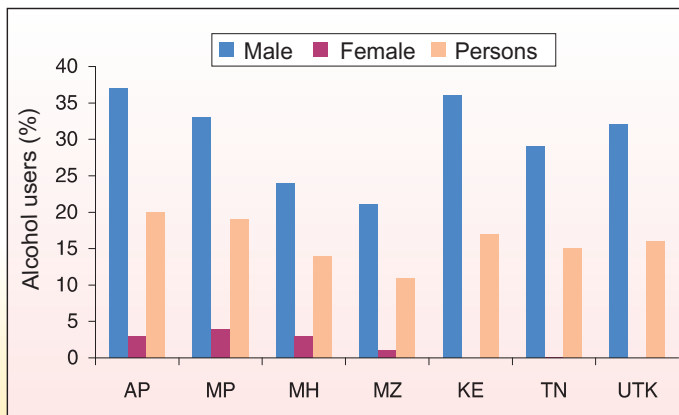


Figure 3. Respondents consumed alcohol in last 12 months (%) by sex and phase-I states

Alcohol Consumption

In the survey, percentage of the respondents reported to have consumed alcohol in past 12 months ranged from a low 11% in Mizoram to high 20% in Andhra Pradesh. Except Andhra Pradesh and Kerala, the prevalence of alcohol consumption was higher among rural respondents than their urban counterparts. The average number of standard drinks consumed on a drinking day ranged from a low of 2 in Madhya Pradesh and Maharashtra to a high 8 in Uttarakhand. The mean age of initiation of alcohol consumption regularly in the age group 15-34 years was 20-22 years in all the seven states.

Fruits and Vegetables Consumption

In a week, people consumed vegetables 4-7 days and fruits only 2-3 days in all the states. The

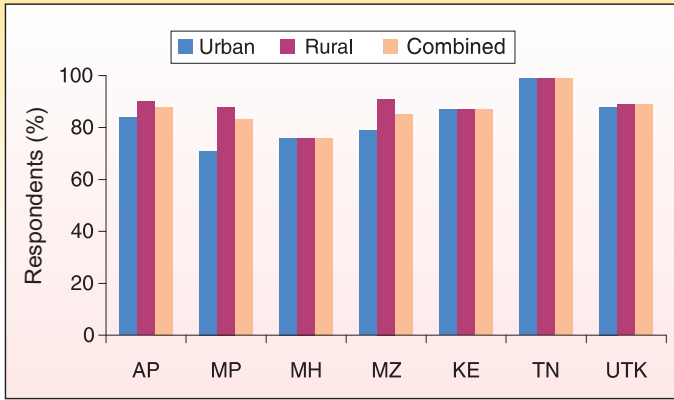


Figure 4. Respondents consumed less than five servings of fruits & vegetables (%) per day by residence and phase-I states

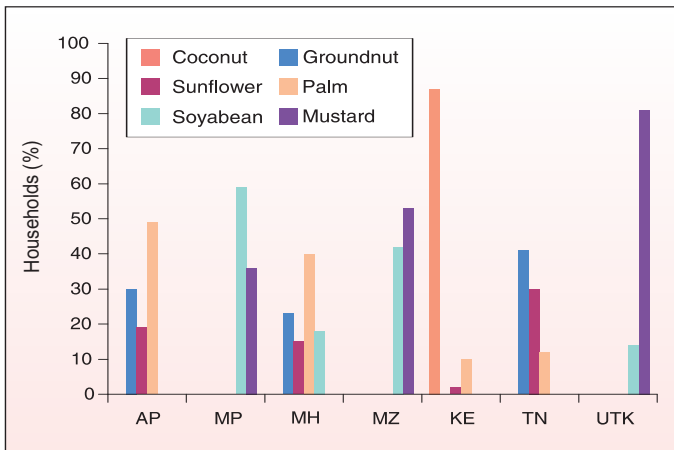


Figure 5. Type of oil consumption among the households for cooking (%) in phase-I states

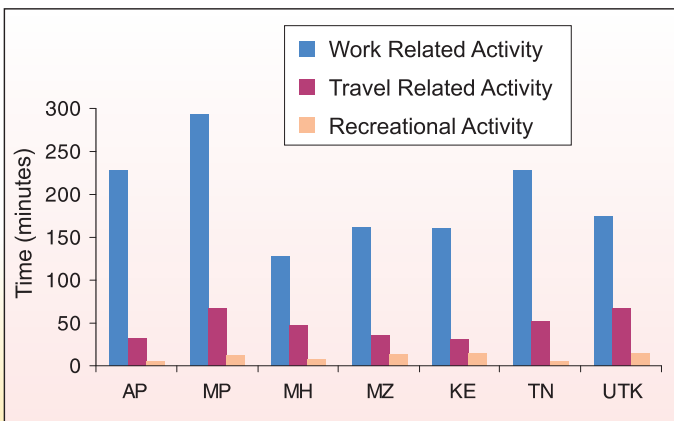


Figure 6. Mean time spent on physical activity per day (minutes) in phase-I states

mean number of days in a week, when fruits were consumed, was higher among urban population as compared to rural. There was not much difference between urban and rural respondents in the mean number of days consumed vegetables in a week. The percentage of respondents consumed less than five servings of fruits and vegetables per day ranged from a low 76% in Maharashtra to high 99% in Tamil Nadu.

The edible oil used commonly for cooking were mustard and soyabean oil in Madhya Pradesh, Mizoram and Uttarakhand; groundnut, soyabean and palm oil in Andhra Pradesh and Tamil Nadu. In Maharashtra, the edible oil used commonly were groundnut, soyabean, palm and sunflower oil. Coconut oil was the only edible cooking oil used commonly in Kerala.

Physical Activity

The lack of physical activity leads to obesity, hyper-lipidemia, diabetes mellitus, hypertension, and coronary heart disease. The present survey found that the mean time spent on work related physical activity ranged from a low 128 minutes per day in Maharashtra to a high 293 minutes per day in Madhya Pradesh. Most

time spent was mainly related to work only. The mean time spent in travel related activities (cycling/ walking) ranged from a low 31 minutes per day in Andhra Pradesh to a high 69 minutes per day in Uttarakhand. The survey also reported that the mean time spent in recreational activities was low (4 minutes per day) in Andhra Pradesh and high (67 minutes per day) in Madhya Pradesh.

As per the WHO guidelines, the total physical activity of the individual has been categorized as low, medium and high. The proportion of respondents reporting low physical activity was lowest (42%) in Madhya Pradesh and highest (81%) in Maharashtra.

Hypertension and Diabetes

Hypertension

The blood pressure is an important determinant of risk of cerebrovascular and ischemic heart diseases, congestive cardiac failure and renal failure. In the survey, the reported cases of hypertension diagnosed by health professionals, ranged from 2% in Madhya Pradesh to 9% in Kerala. Among those who were diagnosed with hypertension, majority of them were on prescribed drugs. The advice on dietary modification and lose weight ranged from a low 22% to high 71% in all the states. A low 1% of such cases in Madhya Pradesh to high 22% in Maharashtra consulted AYUSH practitioners. Of those consulted AYUSH, a low 24% in Madhya Pradesh to high 81% in Uttarakhand were taking treatment from the same. The survey also carried out measurement of blood pressure as a part of step-2 of individual questionnaire. The mean systolic blood pressure in the population ranged from 123 mm Hg in Maharashtra and Andhra Pradesh to 126 mm Hg in Madhya Pradesh. Mean diastolic blood pressure ranged from 77 mm Hg in Andhra Pradesh and Kerala to 81 mm Hg in Mizoram. By categories of hypertension, 17-21% of the respondents in all the states were found in stage I or stage II hypertension.

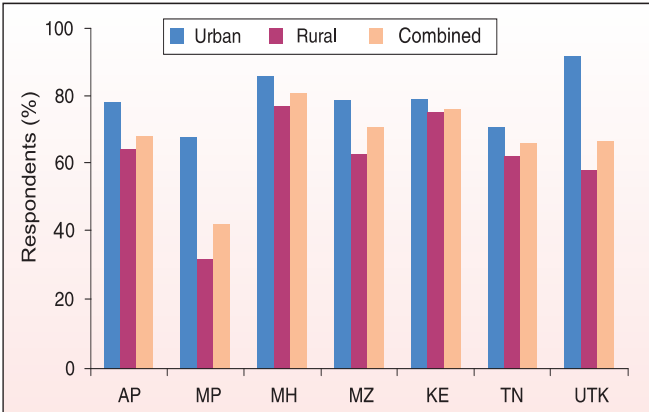


Figure 7. Low physical activity of respondents (%) by residence and phase-I states

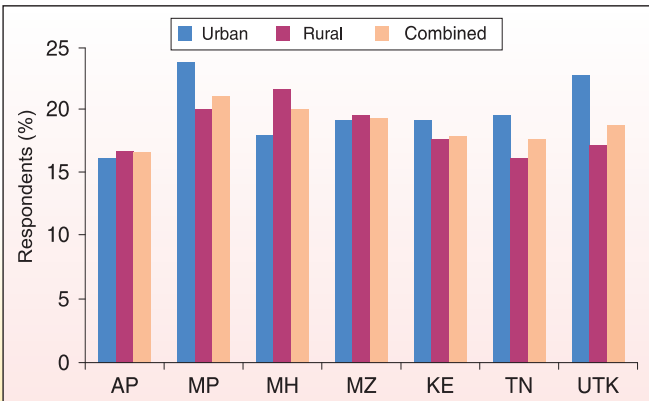


Figure 8. Stage I & II hypertension (%) by residence and phase-I states

Diabetes

Diabetes mellitus is an important marker of risk for the arterial disease of the coronary, cerebral and peripheral arterial trees, and for micro vascular disease leading to blindness

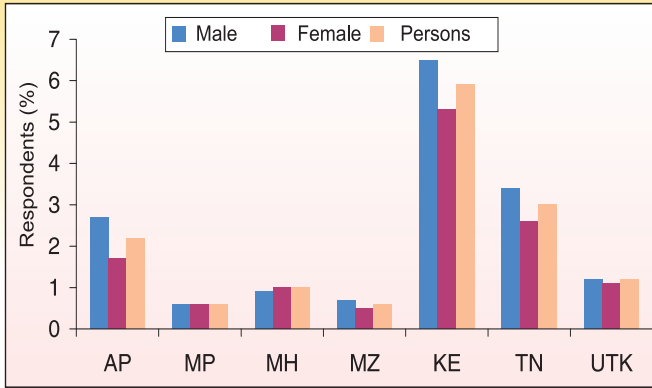


Figure 9. History of raised blood sugar (%) by sex and phase-I states

and renal failure. The survey also included information on history of diabetes. A low 1% of the respondents in Mizoram, Madhya Pradesh and Maharashtra and high 6% in Kerala reported to have history of raised blood sugar. Of which, 12-46% were taking insulin and 66-87% were on oral drugs. A large number of them were advised life style modification such as diet modification, lose weight and increase physical activity. About a low 3% and high 31% (of the diagnosed) in all the states had consulted AYUSH practitioners for the elevated blood sugar levels and the compliance to the prescribed treatment of system ranged from 58-93%.

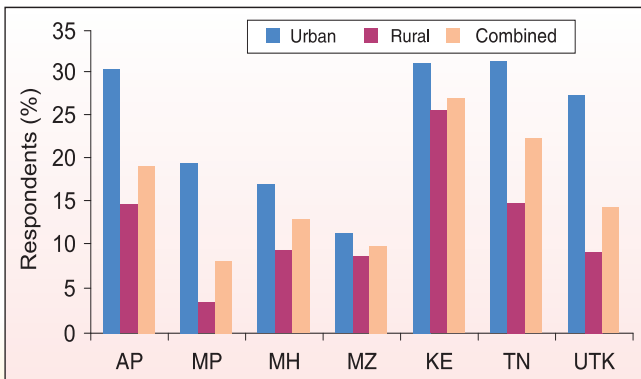


Figure 10. Overweight respondents (%) by residence and phase-I states in India

PHYSICAL MEASUREMENTS

Body Mass Index (BMI)

World wide researches have shown that there is a strong association between BMI and health risk. On the other hand, low BMI is an indicator of risk to health, often being associated with tobacco, alcohol use and drug addiction. The survey recorded height, weight and waist circumference

of the surveyed individuals. The mean BMI in all the seven states ranged between 20 to 23 kg/m² with mean height ranging from 157 to 160 cm and mean weight 50 to 58 kg. The respondents in under weight category were 14% in Mizoram 15% in Kerala and 39% in Madhya Pradesh. In other four states, respondents in the underweight category ranged from 23 to 28%. The grade I overweight was only 7% in Madhya Pradesh closely followed by 9% in Mizoram, 11% in Uttarakhand and Maharashtra where as it was 15% in Andhra Pradesh, 18% in Tamil Nadu and 22% in Kerala. The obesity of grade 2 and above was around 5% in Tamil Nadu, Andhra Pradesh and Kerala and it was around 2 to 3% in rest of the states.

Overall, NCD risk factors were prevalent across all the socio-economic and demographic categories of population in phase I states. The results generated through this survey would certainly focus on major issues in bringing changes or initiate various programs related to control of non-communicable diseases.