Bangladesh NCD Risk Factor Survey 2010: Presentation of Results

Bangladesh Society of Medicine

WHO, Bangladesh

NCD & OPHI, DGHS

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Non Communicable Disease (NCD)

- Non-communicable diseases are a set of chronic diseases of major public health importance, the genesis of which is influenced by one or more common risk factors.

- The literary meaning that diseases which are not infectious are non-communicable diseases is also true.

- The diseases of major public health importance, which are considered eminently preventable and/or controllable, are the diseases included under the term NCDs.

Non communicable diseases (NCDs) cont.

- NCDs: leading cause of death in the world, representing over 60% of all annual deaths

- Approximately 36 million people die annually from NCDs

- 25% aged under 60 years and regarded therefore as premature and largely preventable deaths.

- 80% of all NCD deaths occur in low- and middle-income countries.

BEHAVIOURAL RISK FACTORS

"Actions/Behaviour that people engage in that put their health at risk"

NCDs

- **Diseases of affluence**
- **Diseases due to urbanization**
- **Diseases of developed world**
- **Chronic diseases**

Biobehavioural disorders

The WHO STEPS approach

Levels of Risk Factor Surveillance at each Step

Measures	Step 1	Step 2	Step 3
Level	(Verbal)	(Physical)	(Biochemical)
Core	Demographics, Tobacco, Alcohol, Nutrition, Physical activity	Measured weight + height, Waist girth, Blood pressure	Cholesterol, Fasting blood sugar
Expanded	Education, Occupation Indicators,	Hip girth,	HDL-Chol, Triglycerides
Optional	Knowledge+ attitudes regarding health Health-related Quality of life and health-related behaviour	Skinfolds, Pedometer	Urine, etc.

Non Communicable Diseases

The causal chain

Behavioral RF
* Tobacco
* Alcohol
* Physical inactivity
* Nutrition

Physiological RF
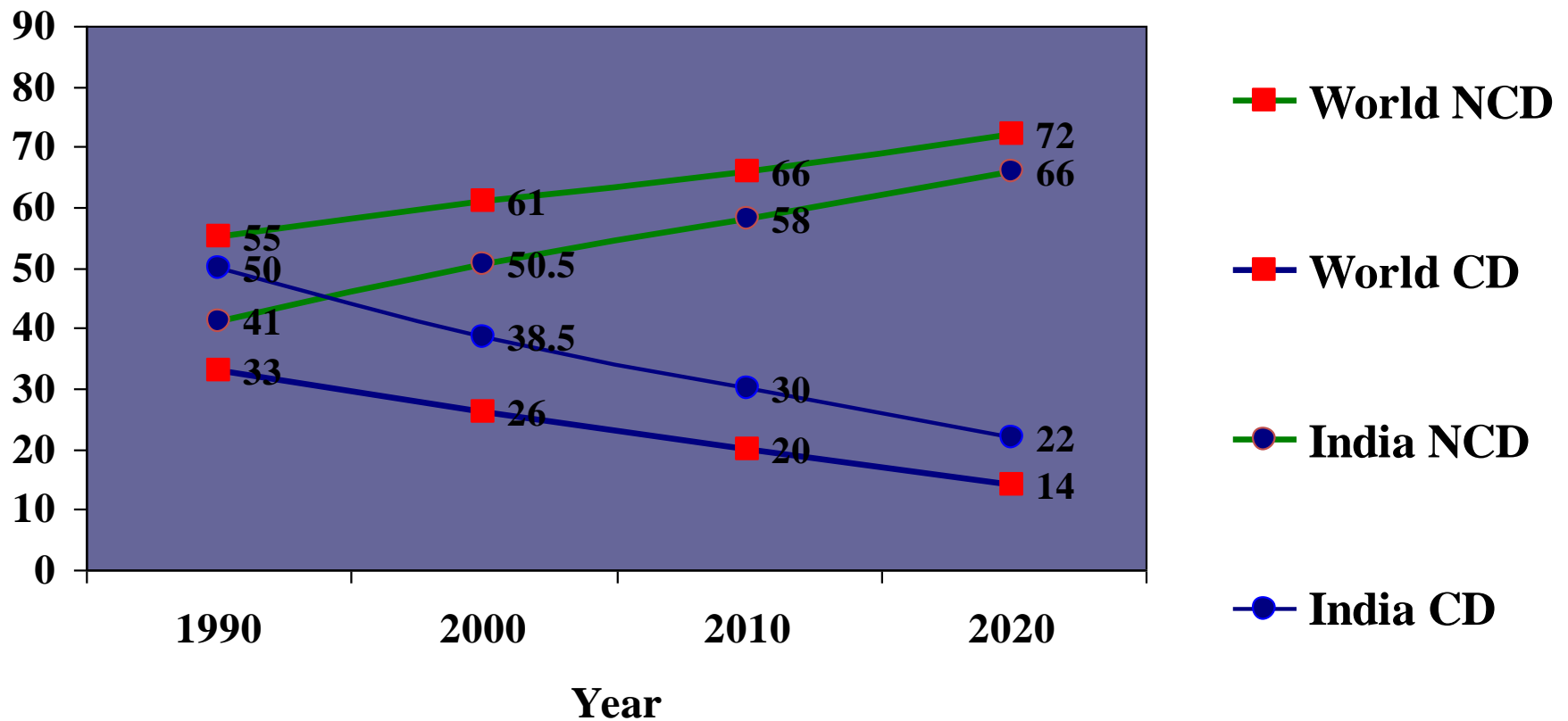* BMI
* Blood pressure
* Blood glucose
* Cholesterol

Disease Outcomes
* Heart disease
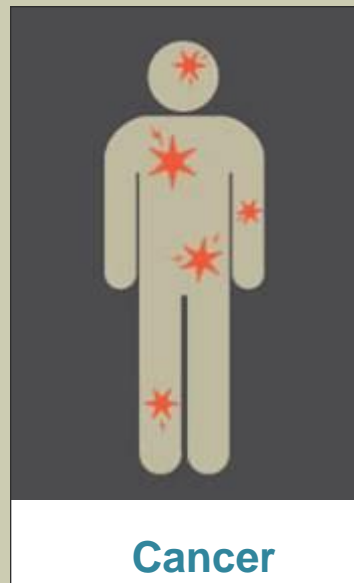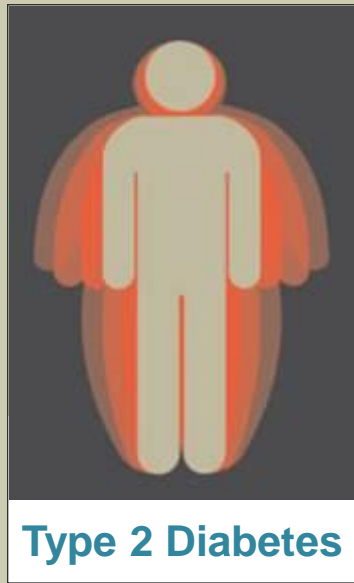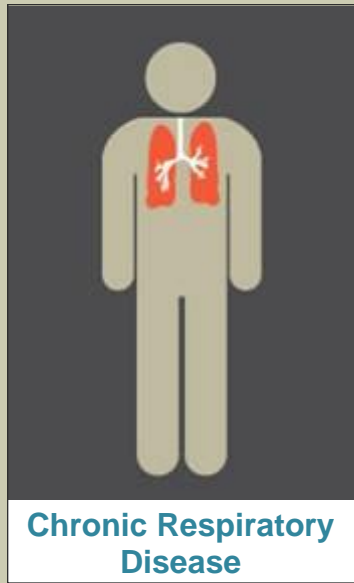* Stroke
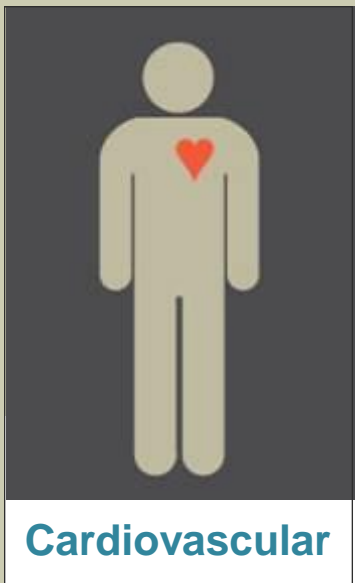* Diabetes
* Cancer
* Respiratory

Deaths due to Non-communicable and Communicable diseases 1990-2020
India, and World (Males)

Risk factors common to major noncommunicable conditions

Risk factor	Condition			
	Cardio-vascular disease*	Diabetes	Cancer	Respiratory conditions**
Smoking	√	√	√	√
Alcohol	√		√	
Nutrition	√	√	√	√
Physical inactivity	√	√	√	√
Obesity	√	√	√	√
Raised blood pressure	√	√		
Blood glucose	√	√	√	
Blood lipids	√	√	√	

Cardiovascular

Chronic Respiratory Disease

Type 2 Diabetes

Cancer

Other NCDS

Major NCDs share common risk factors
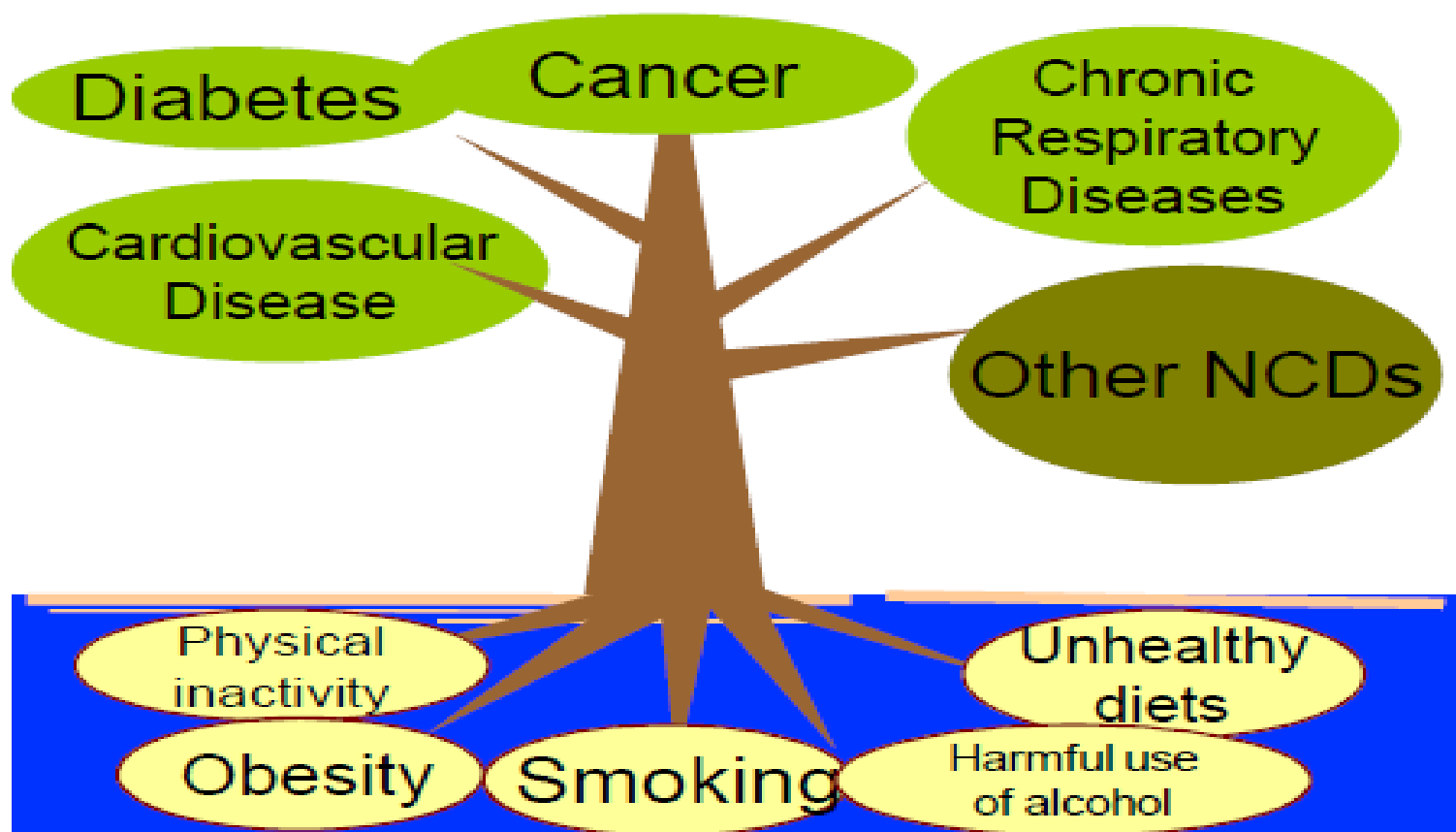
Methods

Survey Results

Sample structure

Traits	Urban	Rural	Total
Total Households Selected	5600	5600	11200
Completed households	4974	4973	9947
Number of Eligible individuals	4974	4973	9947
Completed individuals	4629	4646	9275
Household Response Rate (%)	91.3	90.0	90.6
Individual-level Response Rate (%)	93.1	93.5	93.3

Population characteristics

Respondent

Total 9 275,
Men 4 312
Women 4 963

Age

Average age 42.4
(± 13.5) years

Education

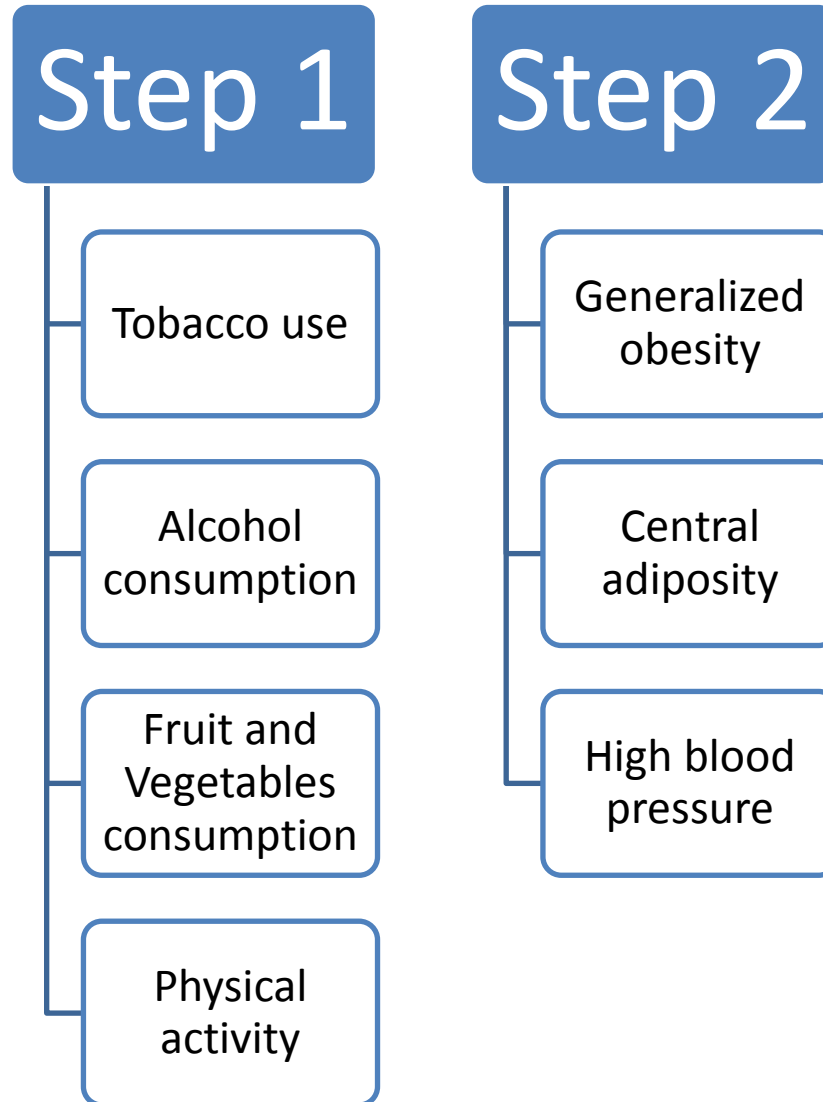They had 3 years of
median schooling

Equal percentage
(11%) of men and
women completed
primary education.

Occupation

In men,
Farmers 22.8%,
businessmen 19.2%,
day laborer 12%
private service 11.8% .

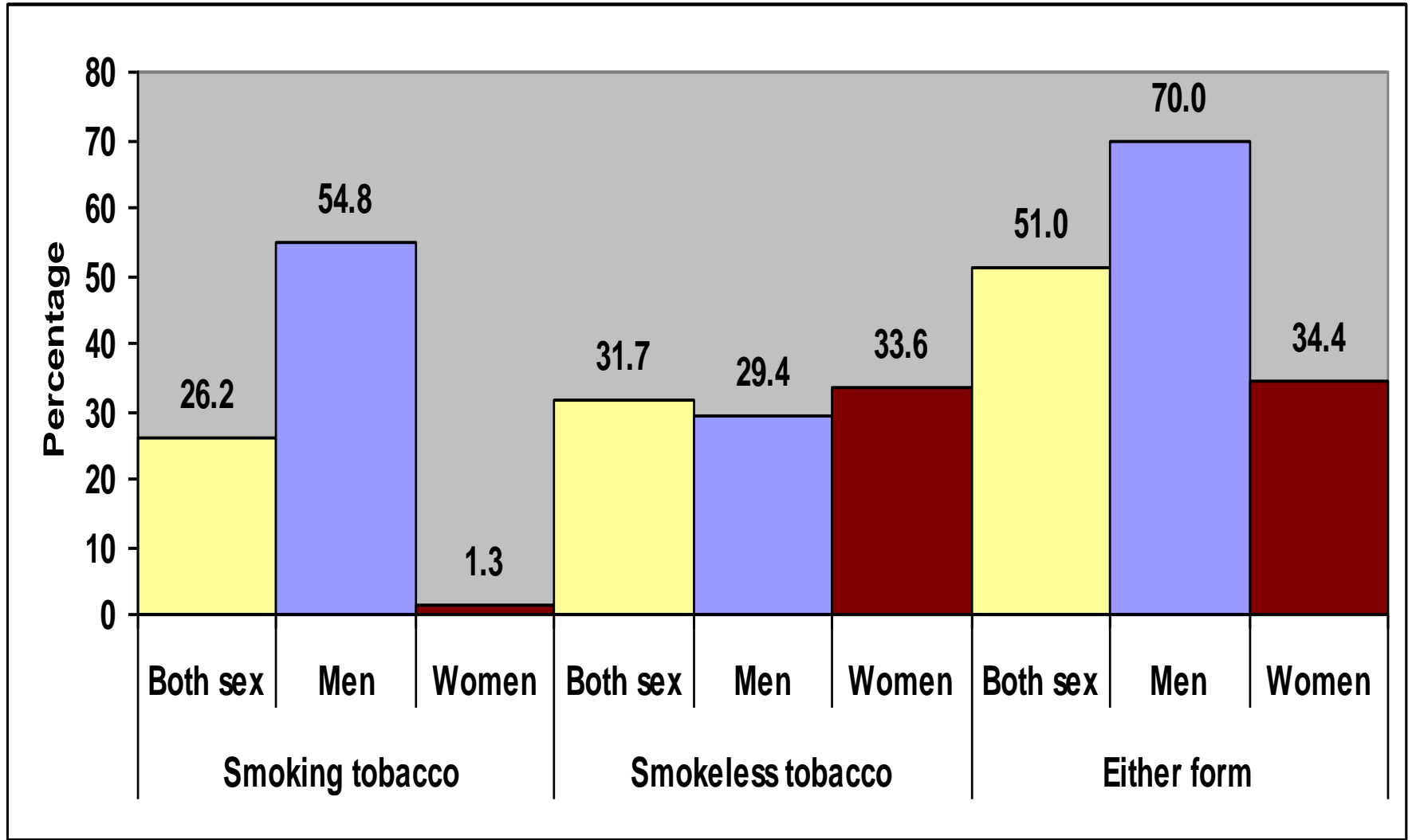In women, housewives
made up 83.4%

Risk factor inquired

Step 1
- Tobacco use
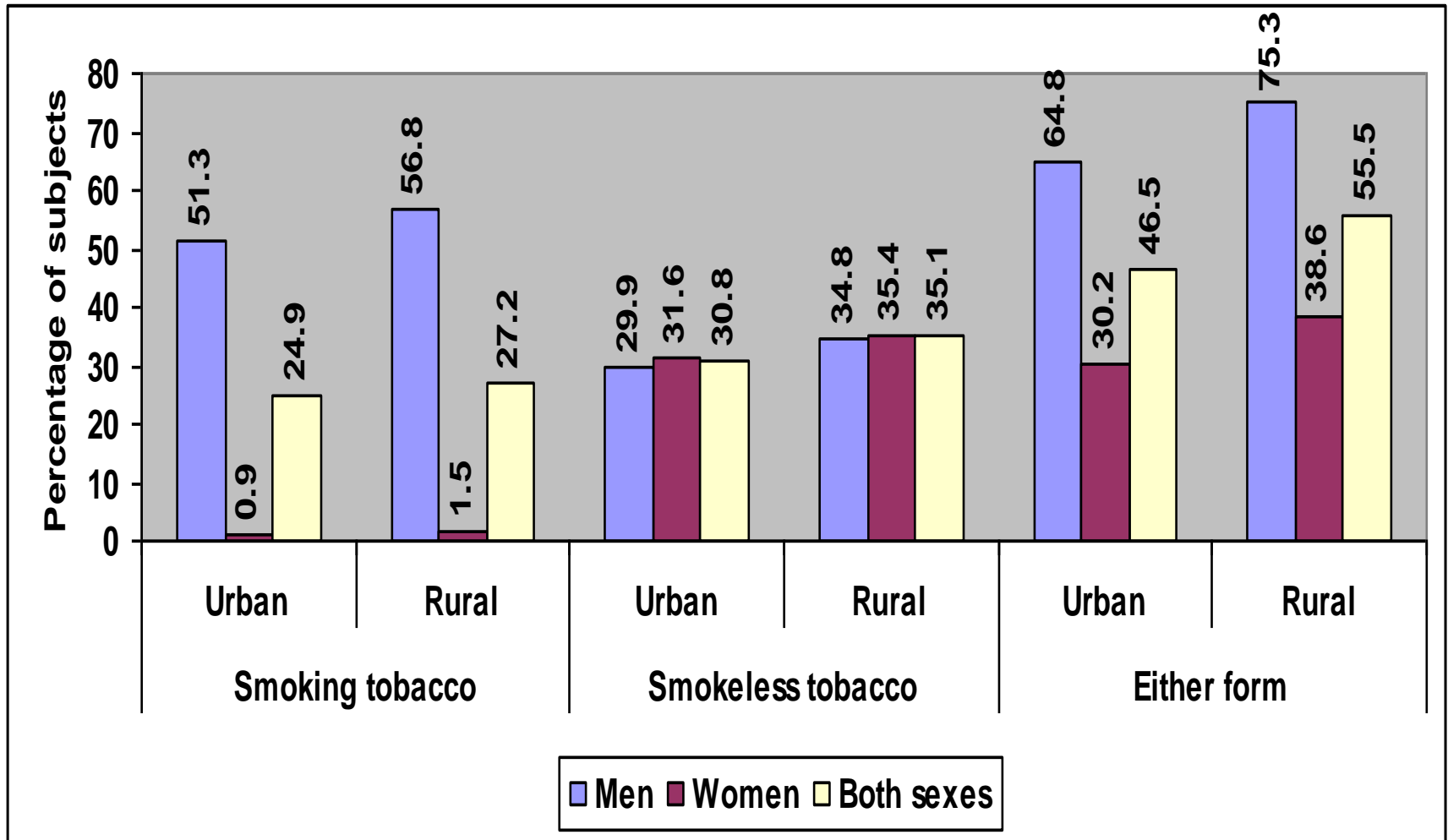- Alcohol consumption
- Fruit and Vegetables consumption
- Physical activity

Step 2
- Generalized obesity
- Central adiposity
- High blood pressure

Tobacco use

Smoking tobacco

Smokeless tobacco

Second hand smoking

Tobacco use

Tobacco use by place of residence

Percentage of subjects

	Smoking tobacco		Smokeless tobacco		Either form	
	Urban	Rural	Urban	Rural	Urban	Rural
Men	51.3	56.8	29.9	34.8	64.8	75.3
Women	0.9	1.5	31.6	35.4	30.2	38.6
Both sexes	24.9	27.2	30.8	35.1	46.5	55.5

■ Men ■ Women □ Both sexes

Diet

Fruit and
Vegetables consumption

Fruit and vegetables consumption

Weekly consumption of fruit or vegetables

- Fruit 1.8 days/week
- Vegetables 6.1 days/week
- Either fruit or vegetables 4 days/ week

Average daily consumption

- Fruit 1.7 serving /day
- Vegetables 2.3 serving /day

95.7% of population don't take adequate fruit and or vegetables

Physical inactivity

Measuring physical activity

- MET: Metabolic equivalent

  One MET is the rate of energy expenditure while sitting at rest. It is taken by convention to be an oxygen uptake of 3.5 ml per kg body weight per minute.

 - Light activities METs: 1

  - Moderate activities METs: 4

  - Vigorous activities METs: 8

MET minutes/ week and cutoff

Total time in minutes in a typical week in moderate or vigorous activity are multiplied with respective MET to calculate MET minute / week
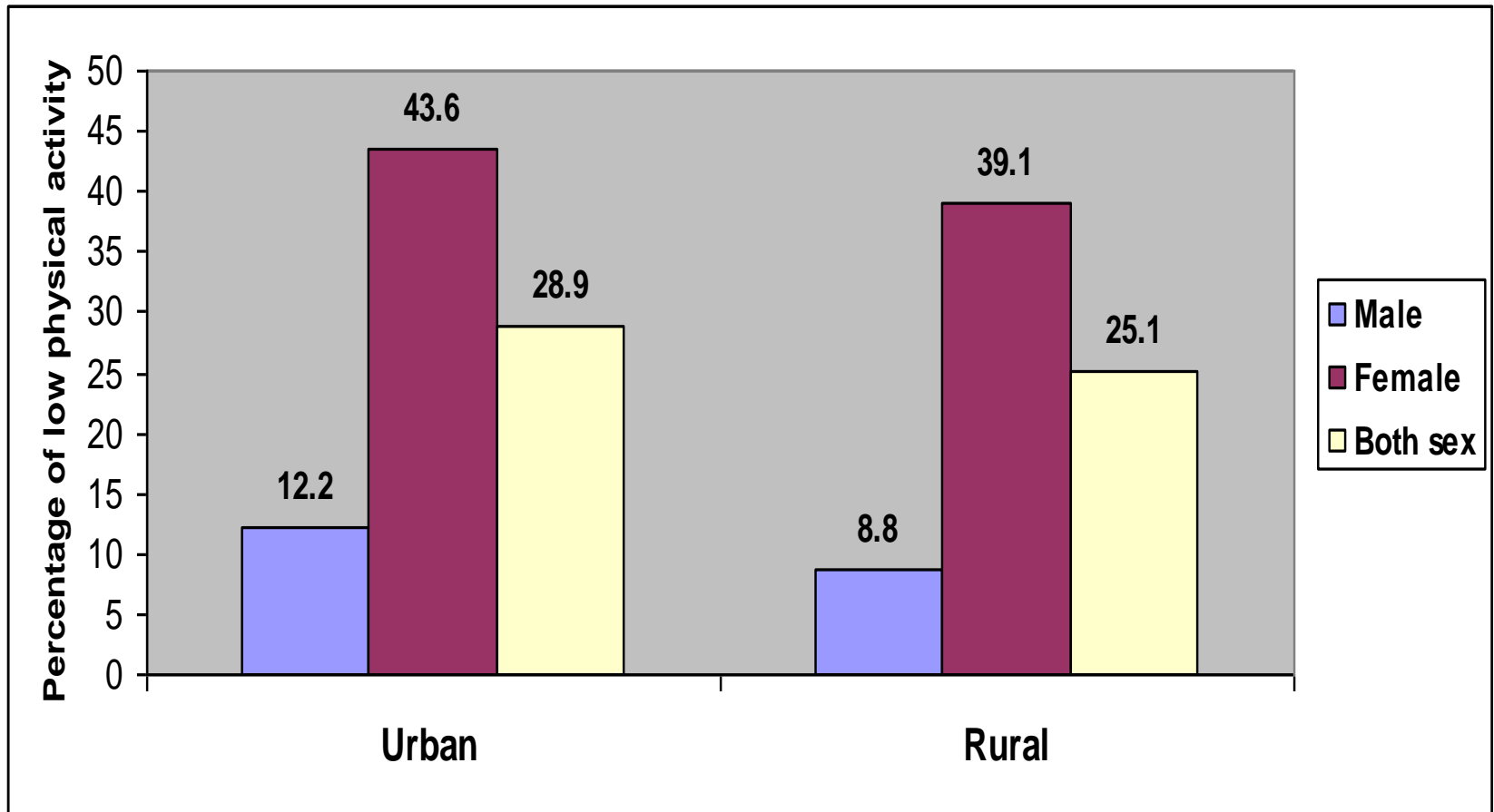
- Met minute cut-off
  - Low physical activity: <600 MET minutes/week
  - Moderate physical activity: 600-2999 MET minutes/week
  - High physical activity: 3000 MET minutes/week

Prevalence of low physical activity i.e. <600 MET minutes per week
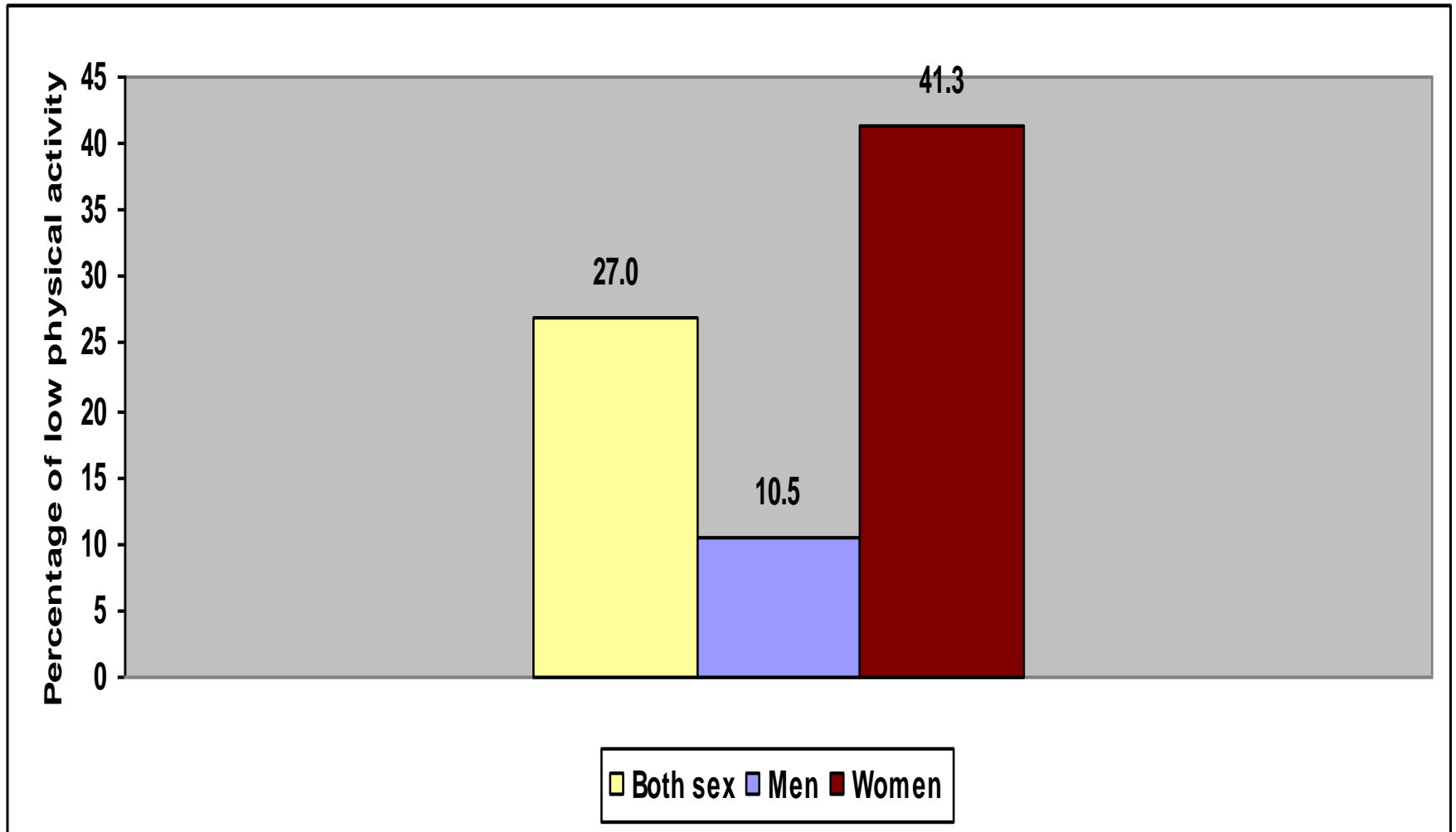
Physical Activity

- Apparently rural men were more active than urban men

Alcohol consumption

Alcohol consumption

- Lifetime abstainer 96%

- Current drinker : 0.8%
  - (men 1.5%, women 0.1%)

- Daily drinker : 4.2%

- Binge drinkers:* 66.7%

- Binge drinking among current drinkers in : 4.2 occasions in past 30 days

* ≥5 standard drinks/ drinking day for men and ≥4 standard drinks/ drinking day for women

- In general alcohol consumption was low in rural area and the prevalence in rural area was almost half
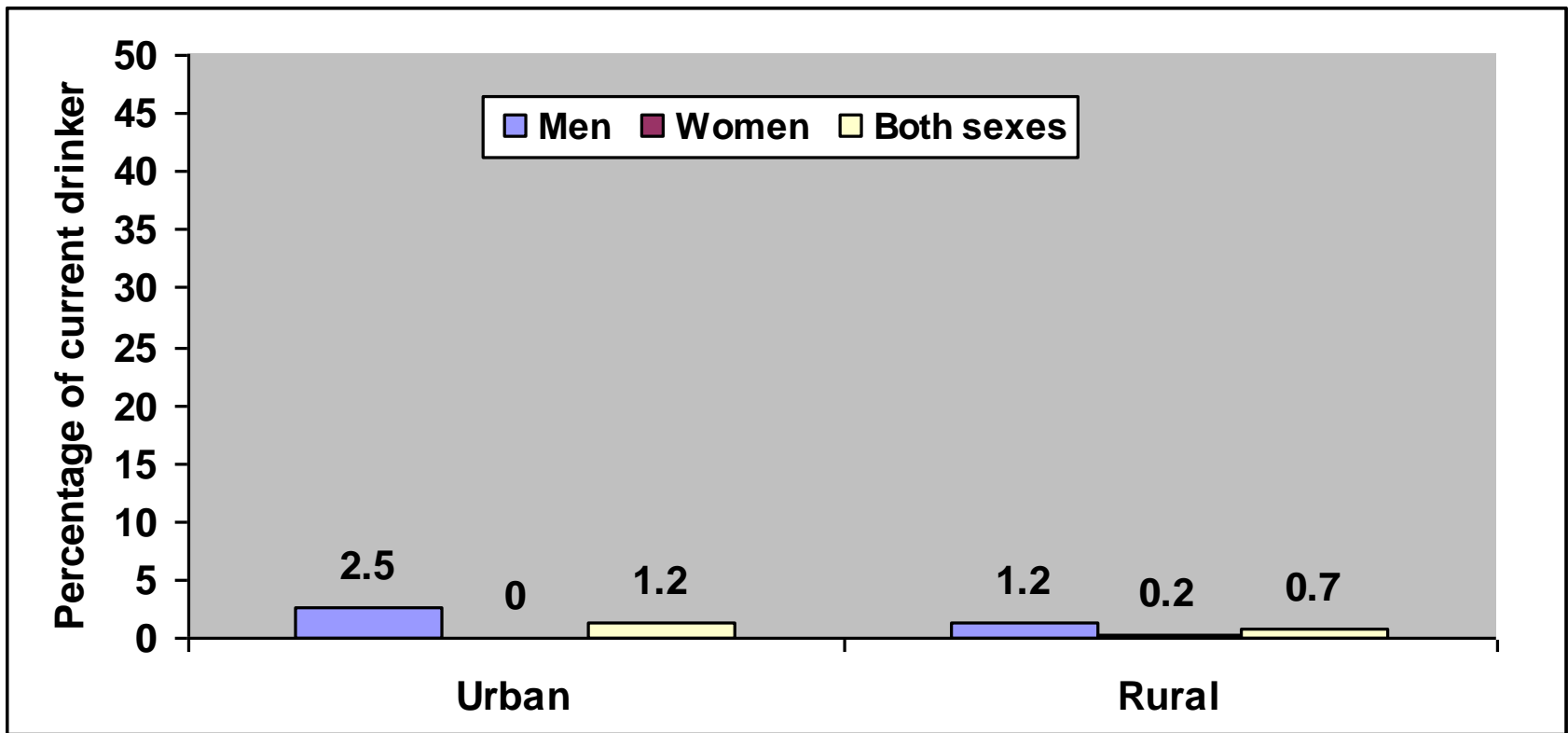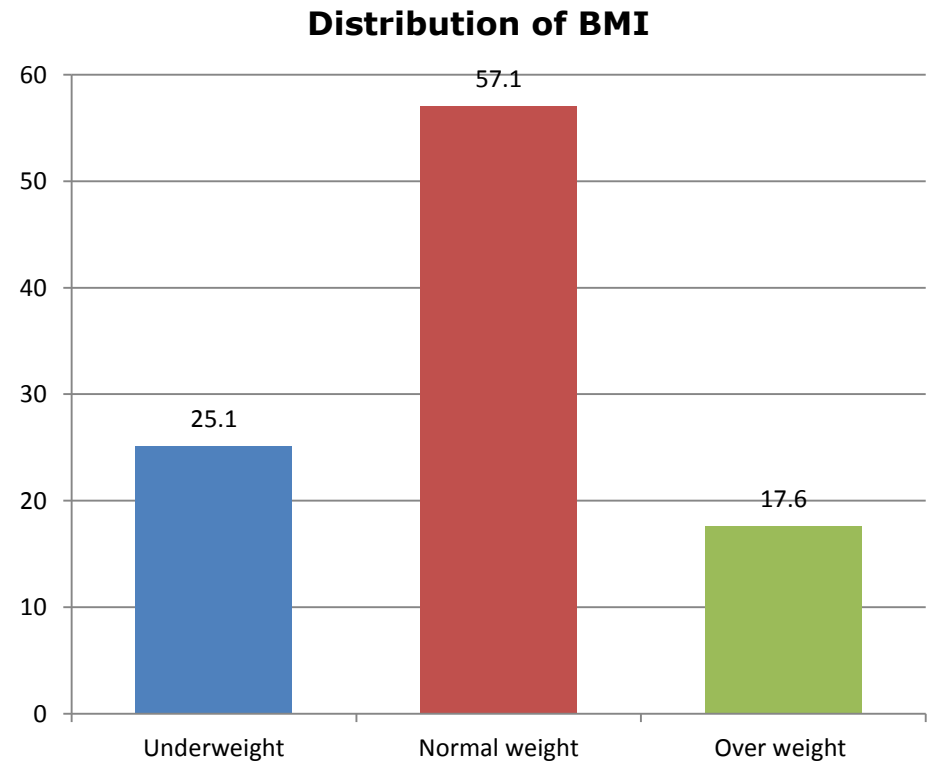
# Obesity

BMI

Waist circumference

BMI

- Average BMI:
  Men 21.0 women 22.0

- Generalized obesity was apparently high in the age group of 35-44 and 45-54 years in both sex.

- Generalized overweight (BMI>25) was more prevalent in urban area than the rural area

Distribution of BMI

Category	Value
Underweight	25.1
Normal weight	57.1
Over weight	17.6

Waist circumference

- Waist circumference is a measure of central adiposity.
- Prevalence of central obesity is higher in women

- Proportion of increased waist circumference is more in urban area than in rural area

Increased waist circumference

	Men	Women	Both sex
	8.0	33.7	21.7

* Increased waist circumference men ≥ 94 cm, women ≥ 80 cm
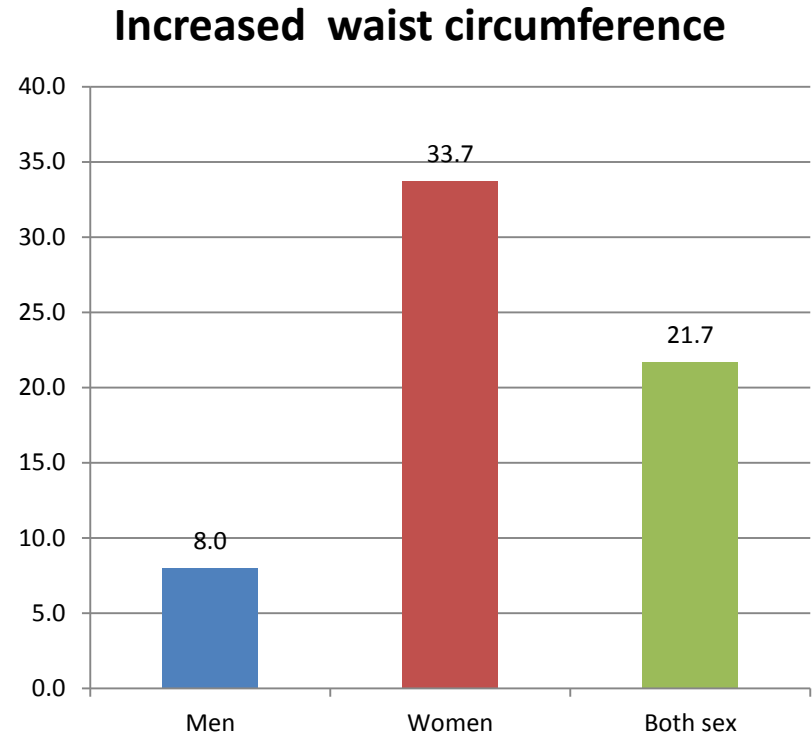
High Blood pressure

High Blood pressure

- Prevalence was more in urban area (19.9%) than in rural area (15.9%)
- Among previously reported hypertensives,
  - 30% normotensive
  - 18% normotensive with medication,
  - 31% hypertensive with medication
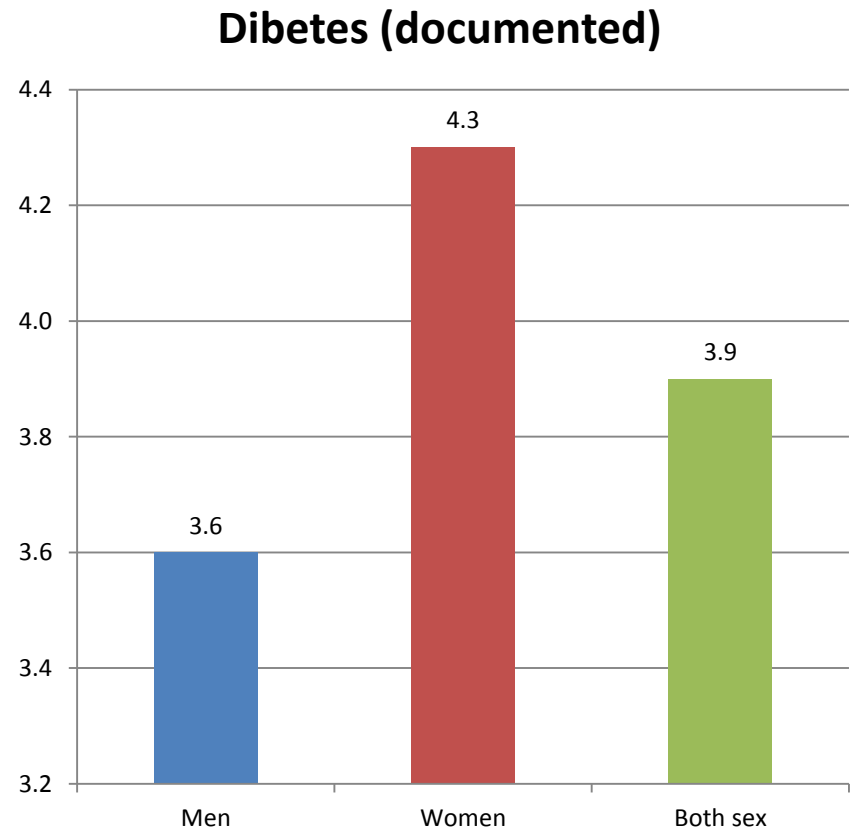 - 21% hypertensive and they did not take any medication.

Prevalance of High Blood pressure

| Men	Women	Both sex
17.3	18.5	17.9
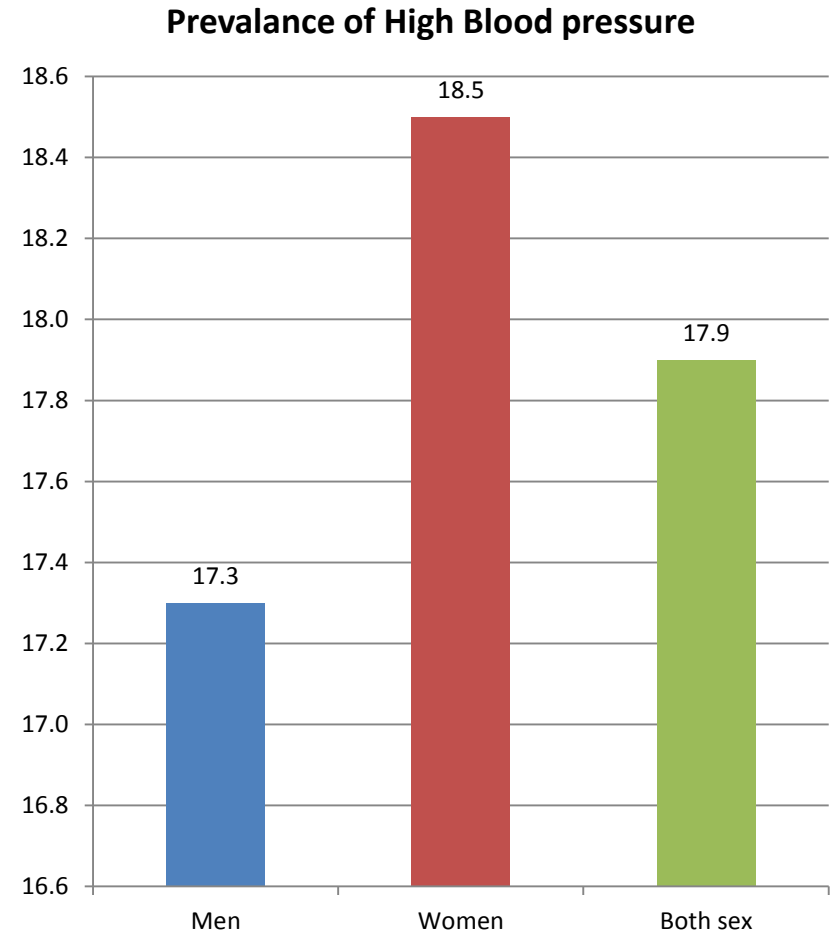
Diabetes

Diabetes

- 83% people never measured their blood glucose

- 21% on insulin and

- 61% on oral hypoglycemic agent

- 7.7% sought advice from traditional healer

- 4.1% on herbal or traditional remedy.

Dibetes (documented)

Socio economic clustering of risk factor

- Plotting the findings in line graph depicted that current alcohol drinking remained same across the socioeconomic quartiles. Diabetes, hypertension, low physical activity and obesity increased with better socioeconomic status achievements. However the opposite is the picture for tobacco use, fruit and vegetable intake. As a result higher proportions of wealthier people are seen to have three or more risk factors concurrently. The trend is almost similar in both rural and urban areas.

Clustering of risk factor
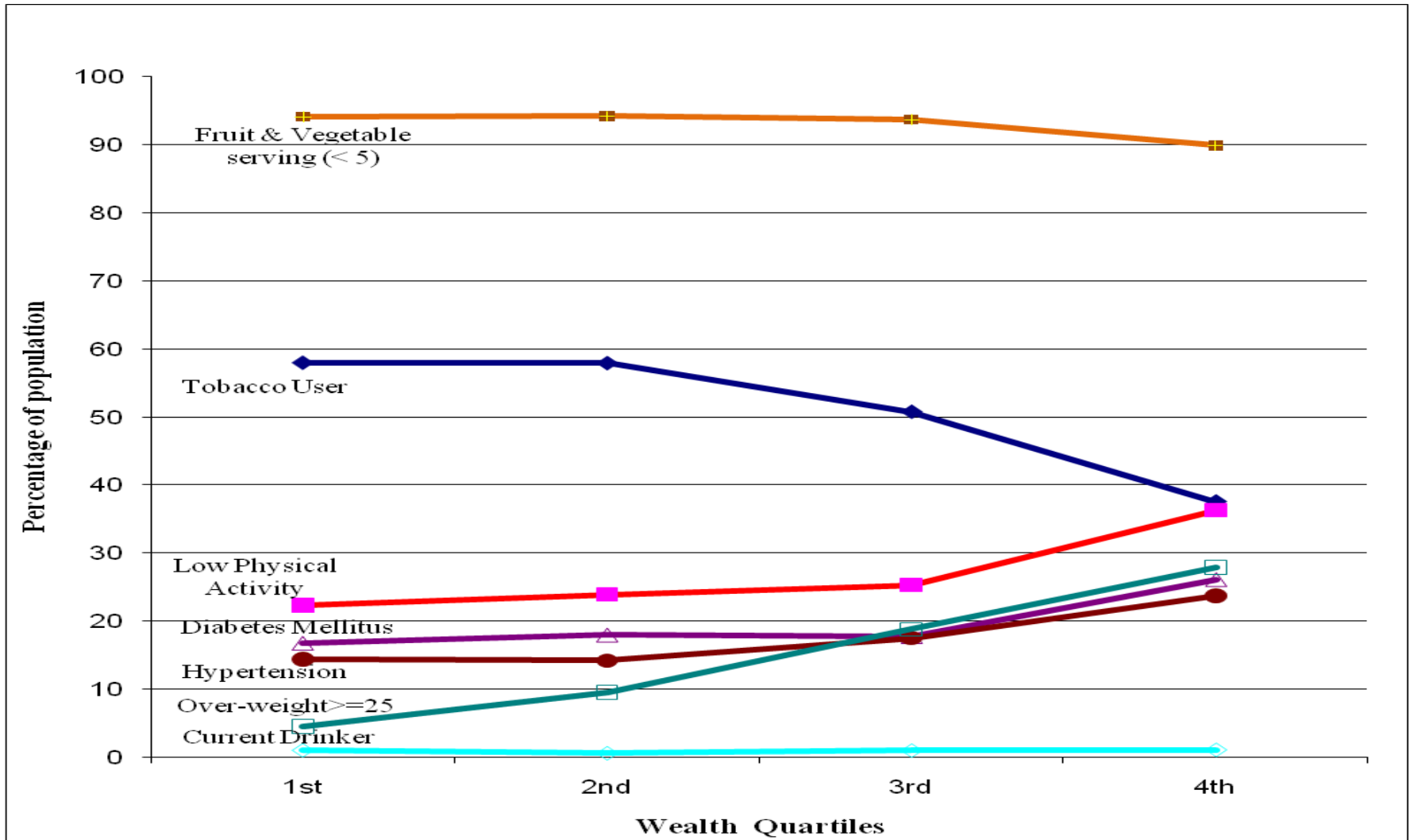
Clustering of risk factor

- 98.7 % has at least one risk factor of NCD
- 77% had two or more risk factors
- 28.3% had 3 or more risk factors.
- More women (31.5%) are found to have three or more risk factor than men (24.7%)
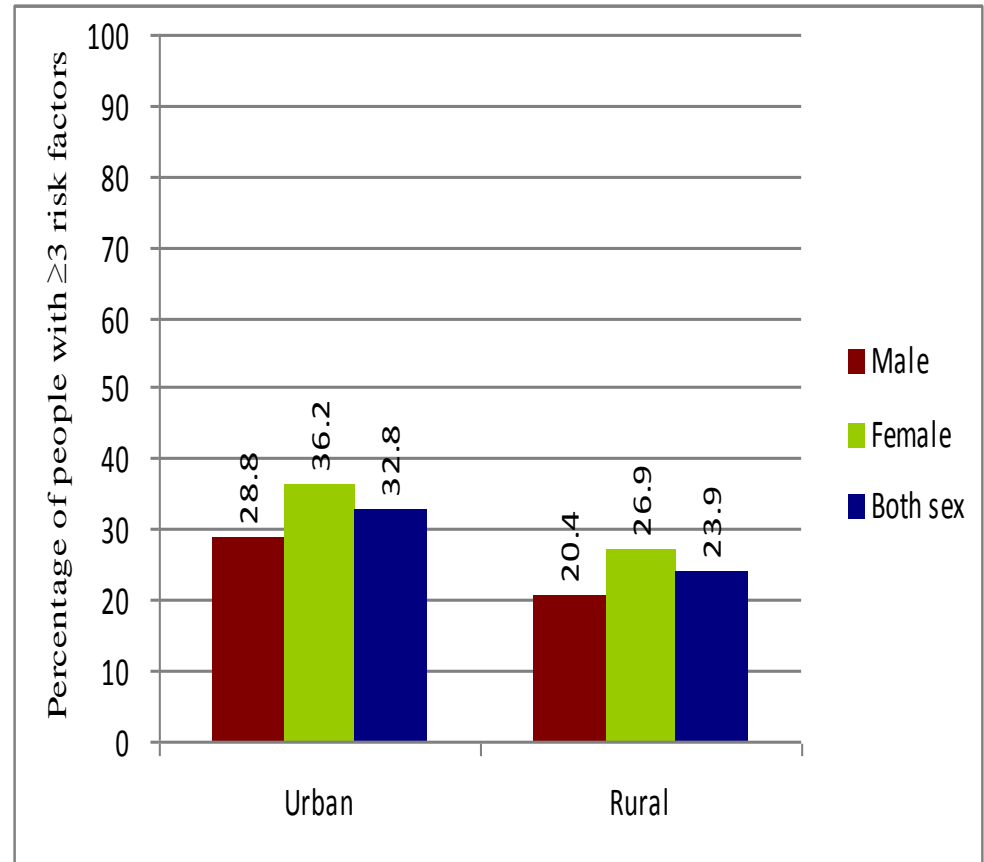
Number of people (in millions) with selected risk factors among adults aged 25 year or above			
Risk Factor	Both sexes	Men	Women
Current smoking	18.9	18.5	0.4
Smokeless tobacco use	21.2	9.9	11.3
Tobacco user (any form)	35.1	23.6	11.5
Low vegetable/Fruit intake [a]	64.5	32.9	31.6
Low physical activity [b]	17.4	3.5	13.9
Obesity [c]	11.6	4.4	7.3
Abdominal adiposity [d]	14.0	2.7	11.3
Hypertension [e]	12.0	6.2	5.8
Diabetes mellitus [f]	2.7	1.4	1.2
[a] < 5 serving/day, [b] < 600 MET per week [c] (BMI > 25 kg/m^2), [d] Waist girth : men ≥ 94 cm women ≥ 80cm [e] BP ≥ 149 /90 mmHg [f] Documented			

Policy recommendations

1. Population based approach using primary health care system for NCD prevention is warranted. Mass awareness through campaigns and school curricula are necessary.

2. Tobacco consumption is high even after five years of having a Tobacco Control Act. Adequate enforcement of the Act is necessary. Necessary amendment of the Act is also required to match with the provisions of WHO Framework Convention on Tobacco Control and close all the loop holes in the tobacco control programme.

3. Strategies to promote accessibility and availability of fruit and vegetables round the year for all people should be formulated and implemented.

4. Appropriate measures should be undertaken, with emphasis on leisure time physical activity, to promote empowering environment for physical activity.

Recommendations (Cont.)

5. A large proportion of people do not measure blood pressure or blood glucose and, hence large proportion of hypertension and diabetes remain undetected. Primary health care system should be reoriented towards, early detection and treatment of these common ailments.

6. Because there is hardly any nationally representative data on NCD risk factors, national surveys on health should consider inclusion of NCD risk factors.

THANK YOU