

Evidence from SAGE in China:

- Risk Factors in China Ageing population

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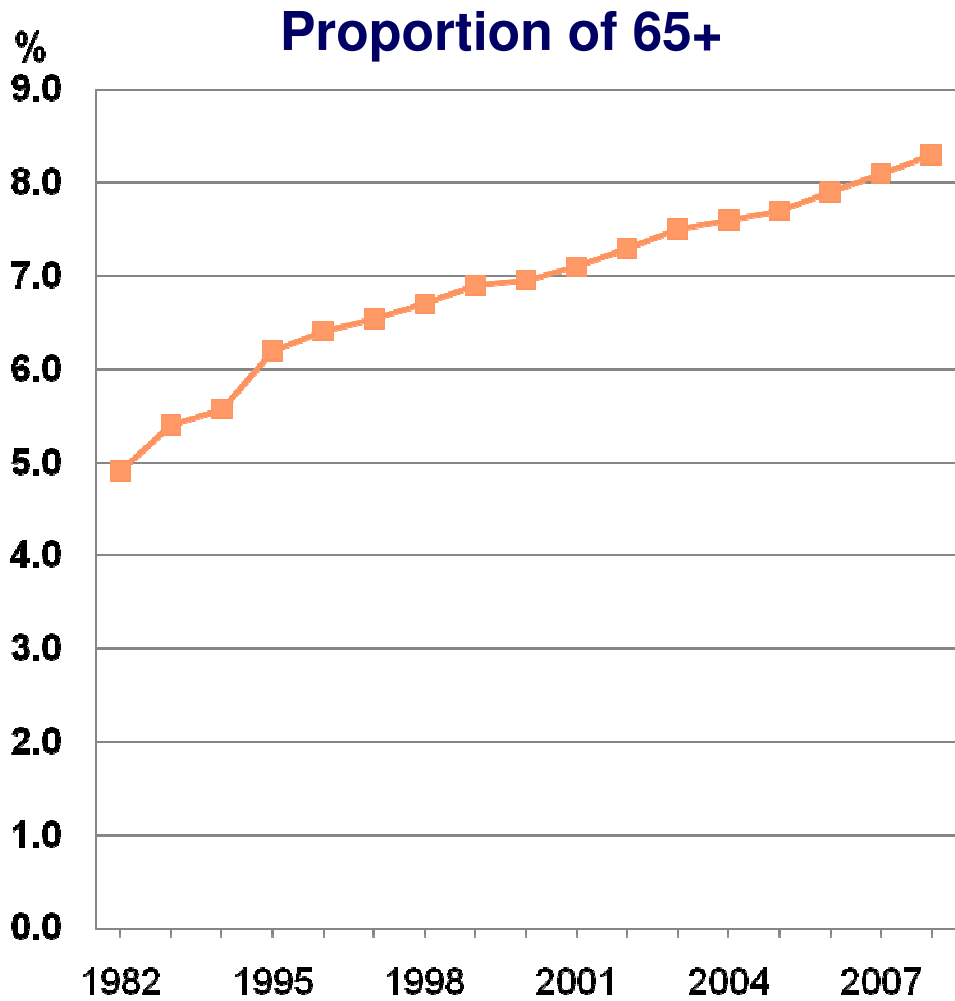
Shanghai Municipal Center for Disease Control and Prevention, China

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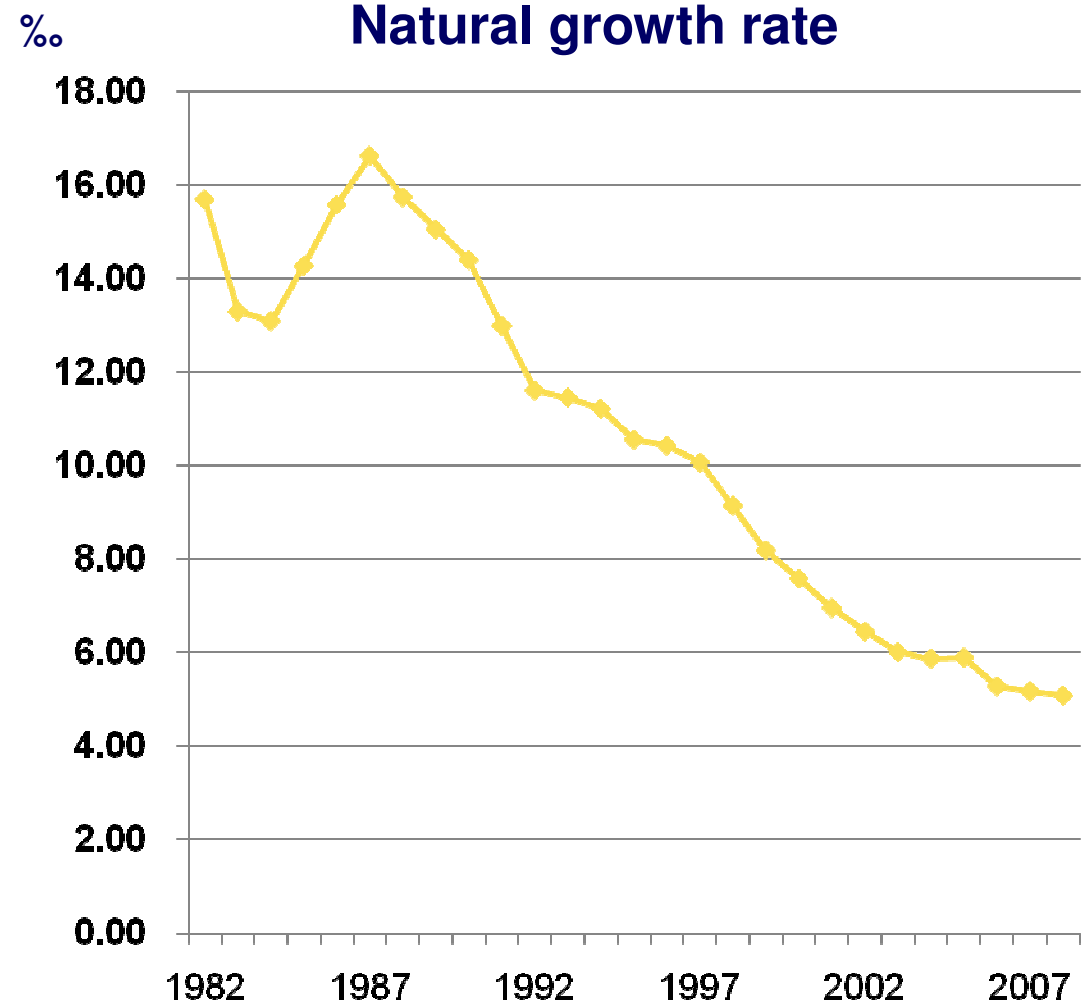
Background

- China is the country with the largest population and the largest elder population in the world.
- Population aged 65+ accounts for 9.6% (130.7 million) in 2010 and will be 23.8% of total population in 2030 (*UN estimated*).
- The crude birth rate has declined from 36 in 1949 to 12 per 100 000 in 2009 and crude death rate has declined from 20 in 1949 to 7 per 100 000 in 2009 (*Chinese Health Statistical Digest 2010*).
- Life expectancy has risen from 57 years in 1957 to 73 years in 2005 (*Chinese Health Statistical Digest 2010*).

Trend in proportion of 65+ and natural growth rate of China (1982-2008)



Data source: *China Statistics Yearbook 2009*



Background (Cont.)

- The declines in natural growth rate and increase of life expectancy have and will continue to accelerate the ageing process of China.
- Shanghai is the provincial area with the highest 65+ rate in China (13%, *China Statistics Yearbook 2009*).
- More than 80% of people in China died of noncommunicable diseases (NCDs).
- Common, modifiable risk factors such as tobacco smoking, alcohol drinking, physical inactivity, etc are main causes of main NCDs.

Design of SAGE in China

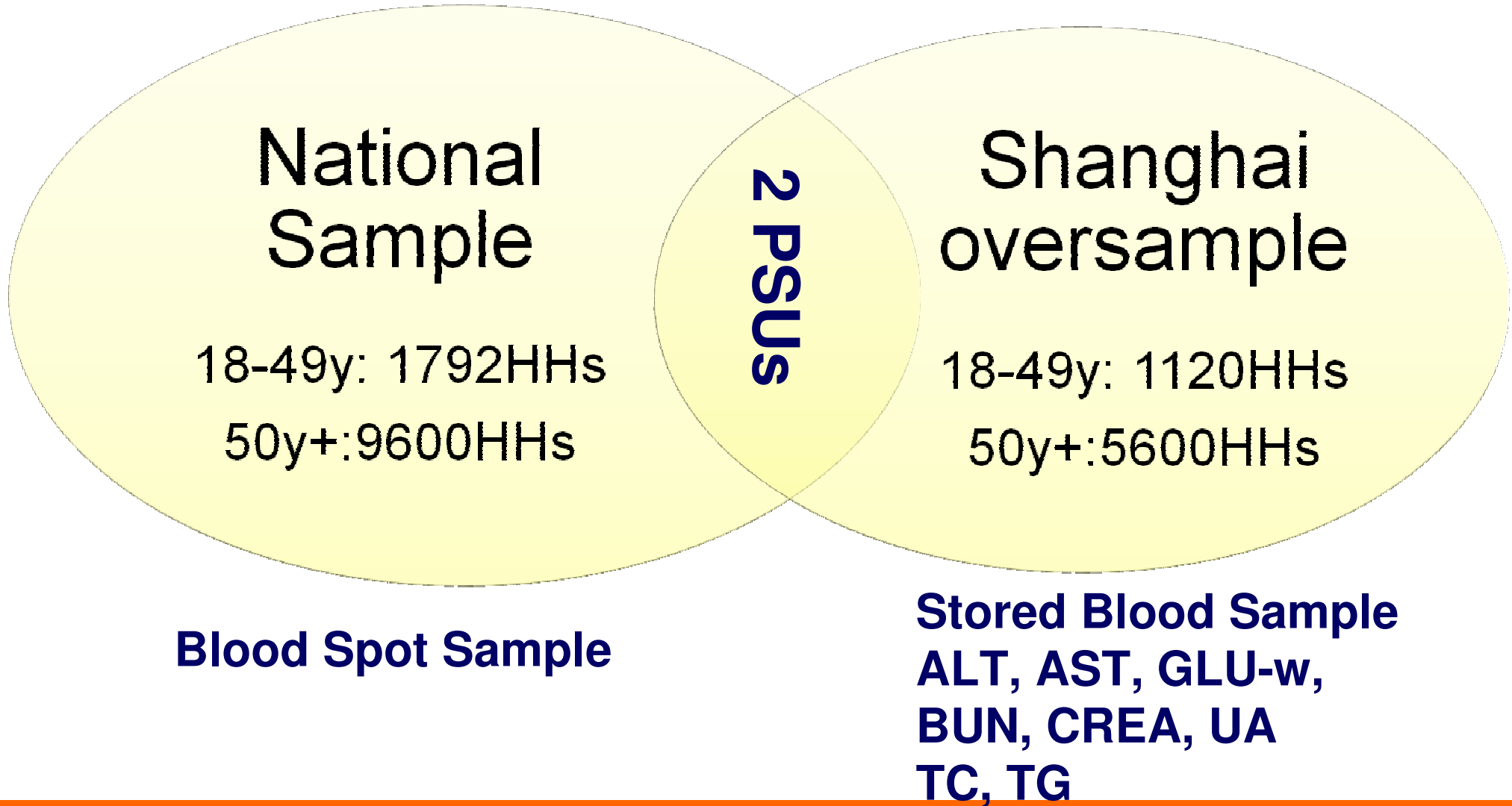
- National representative and Shanghai representative
- National sample
 - Area: 8 Provinces, 1 urban PSU & 1 rural PSU per province
 - Sample size: 11 392HH, About 15 000 IVQ
 - Contents:
 - Questionnaires (household, individual, proxy)
 - Physical measurement (height, weight, WC, BP)
 - Blood spot card
 - Data collection: face to face interview, centralized & door to door

Design of SAGE in China (Cont.)

- Shanghai oversample

- Area: 5 PSUs, 1 urban PSU & 1 rural PSU per province
- Sample size: 6 720 HH, About 9 600 IVQ
- Contents:
 - Questionnaires (household, individual, proxy)
 - Physical measurement (height, weight, waist, BP)
 - Biomedical test - stored blood sample
 - ALT, AST, GLU-w,
 - BUN, CREA, UA
 - TC, TG
- Data collection: face to face interview, centralized & door to door

Relation between China national and Shanghai oversample



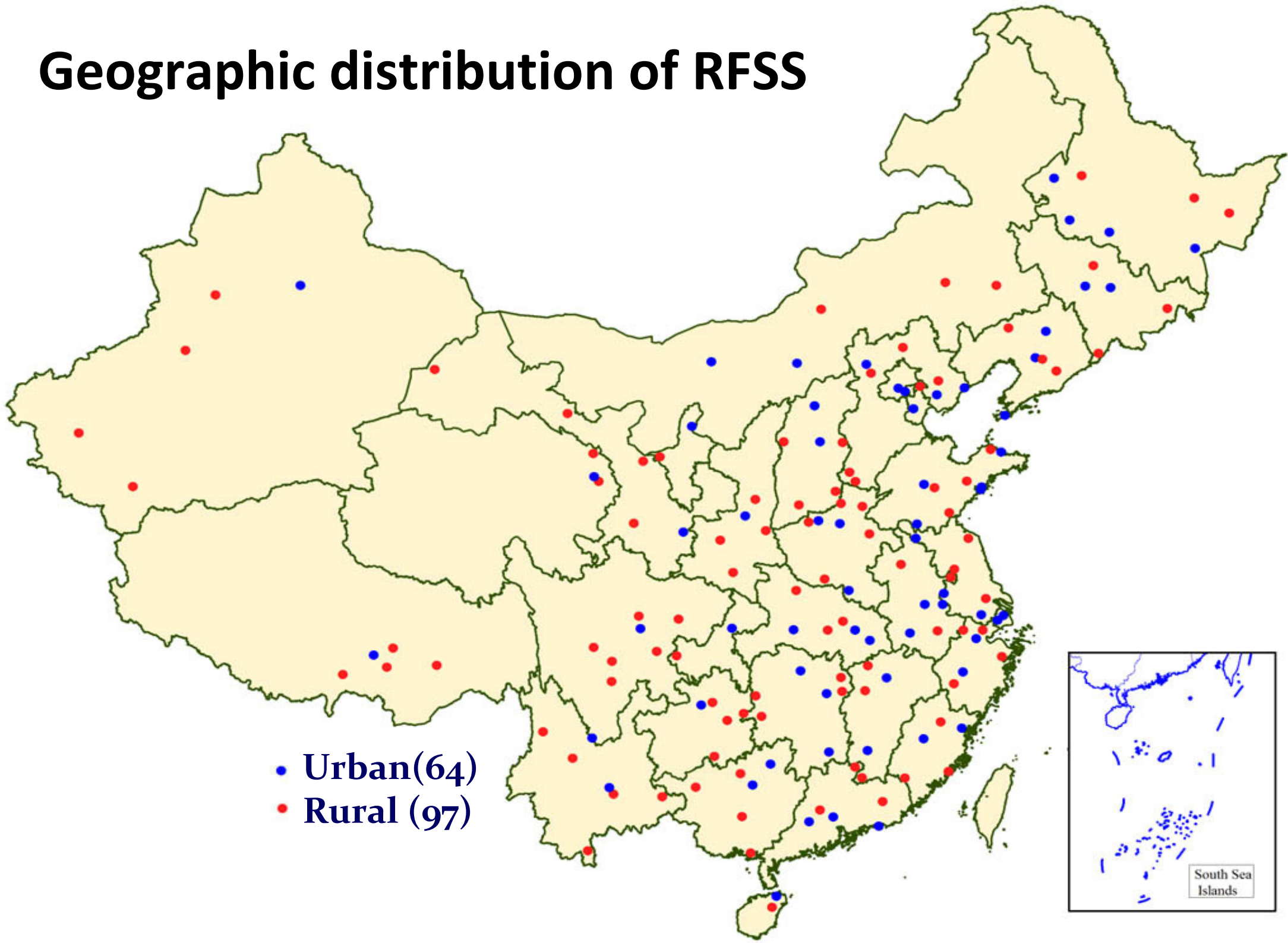
Sample characteristics of SAGE China

Characteristics	CHINA		SHAGNHAI	
	N	%	N	%
Age Group(years)				
18-49	1480	11.0	846	9.3
50-59	5312	39.7	3670	40.3
60-69	3510	26.2	2411	26.5
≥70	3093	23.1	2174	23.9
Gender				
male	6315	47.1	4216	46.3
female	7080	52.9	4885	53.7
Area				
urban	6088	45.4	3548	39.0
rural	7307	54.6	5553	61.0
Education				
No formal education	3010	22.5	1481	16.3
primary or less	5006	37.4	2612	28.7
secondary	2888	21.6	2538	27.9
high	1835	13.7	1738	19.1
college and above	656	4.9	732	8.0
Total	13395	100.0	9101	100.0

Data source

- Study on Global Ageing and Adult Health (SAGE)
 - China National Data
 - Shanghai Oversample Data
- China National NCD Risk Factor Surveillance (NRFS)
 - Initiated in 2004, frequency: every 3 years
 - Cover 31 provinces, 161 counties/districts in China mainland
 - Multi-Stage PPS Sampling
 - KISH Grid method to select individual in household
 - Aged 15-69 years old, 50 000 Households

Geographic distribution of RFSS



In this presentation

- Subject
 - 50+ years old
 - Compare to NRFS for trend : 50-69 years old
- Content : NCD risk factors
- Outline
 - By sex and age group (National & Shanghai)
 - By Area
 - Urban/rural (National)
 - Downtown/suburb(Shanghai)
 - Trend (NCDRFS2004, NCDRFS2007,SAGE2009)-National
 - by gender and /or by urban/rural

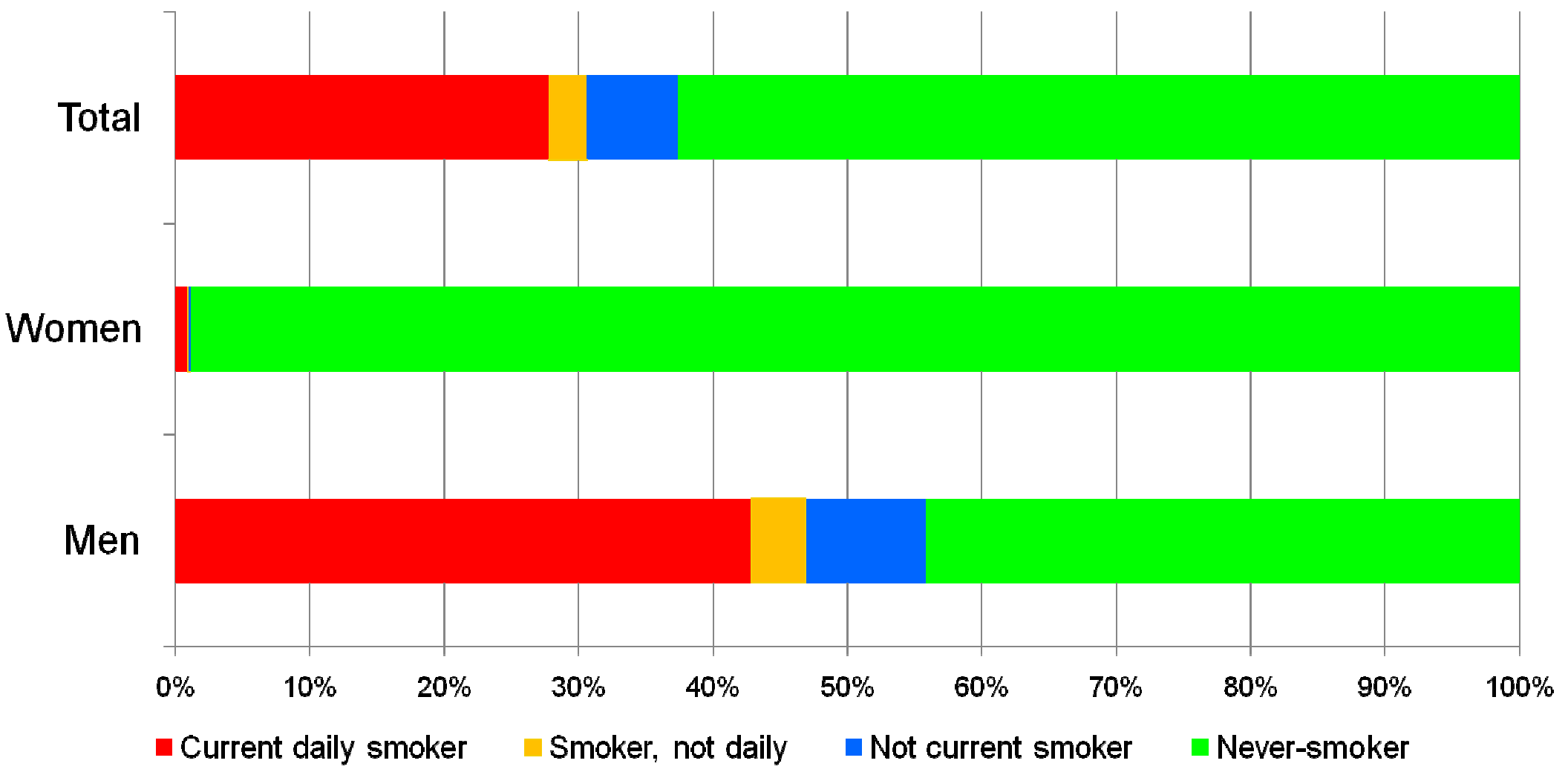
Results

- Tobacco smoking
- Alcohol drinking
- Physical activity
- Fruit and vegetable intake
- Overweight and obesity
- Raised blood pressure
- Accumulation of risk factors

Tobacco smoking

- Focus on current daily smoking(CDS)
- Smokeless tobacco is not included for very low prevalence in China.

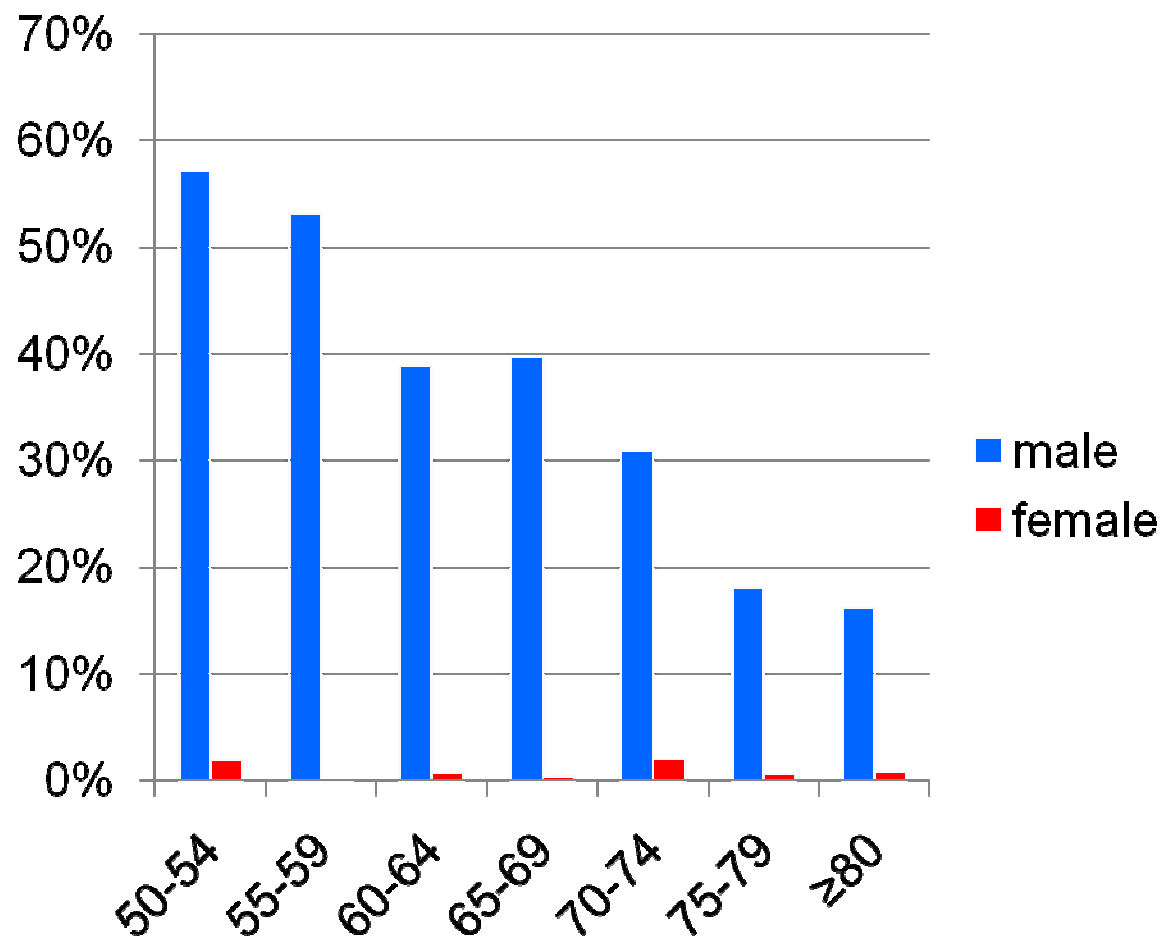
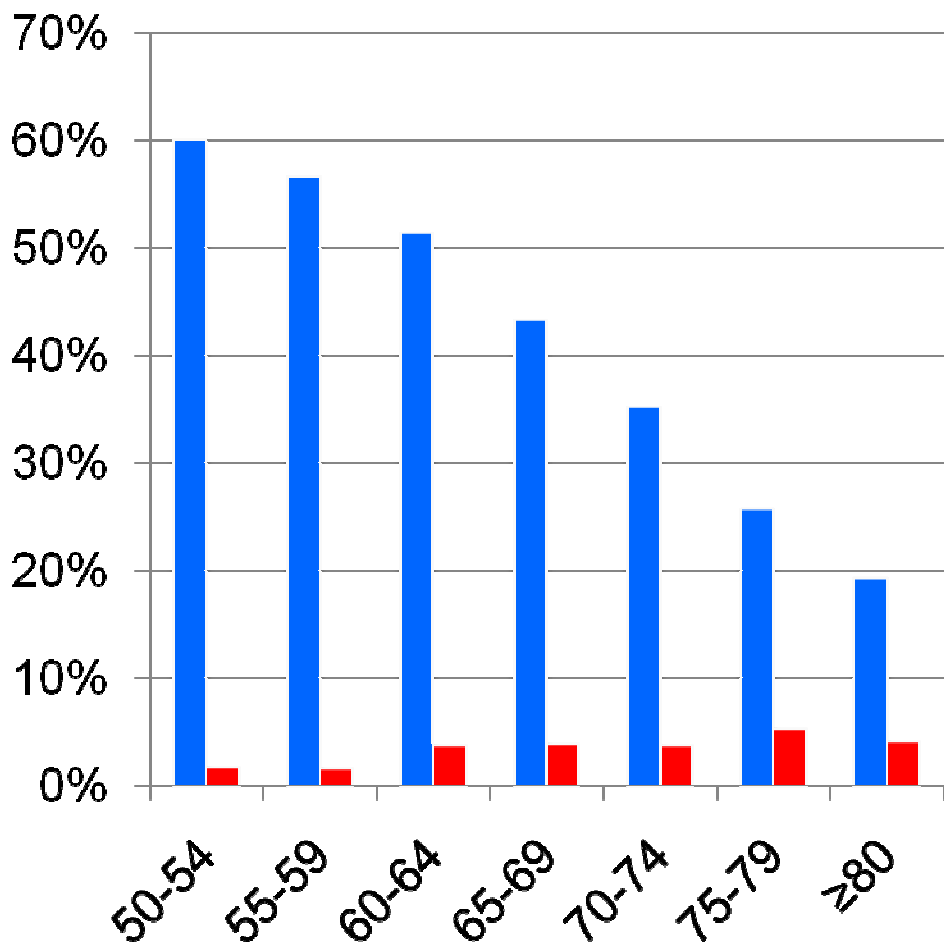
Tobacco smoking by gender



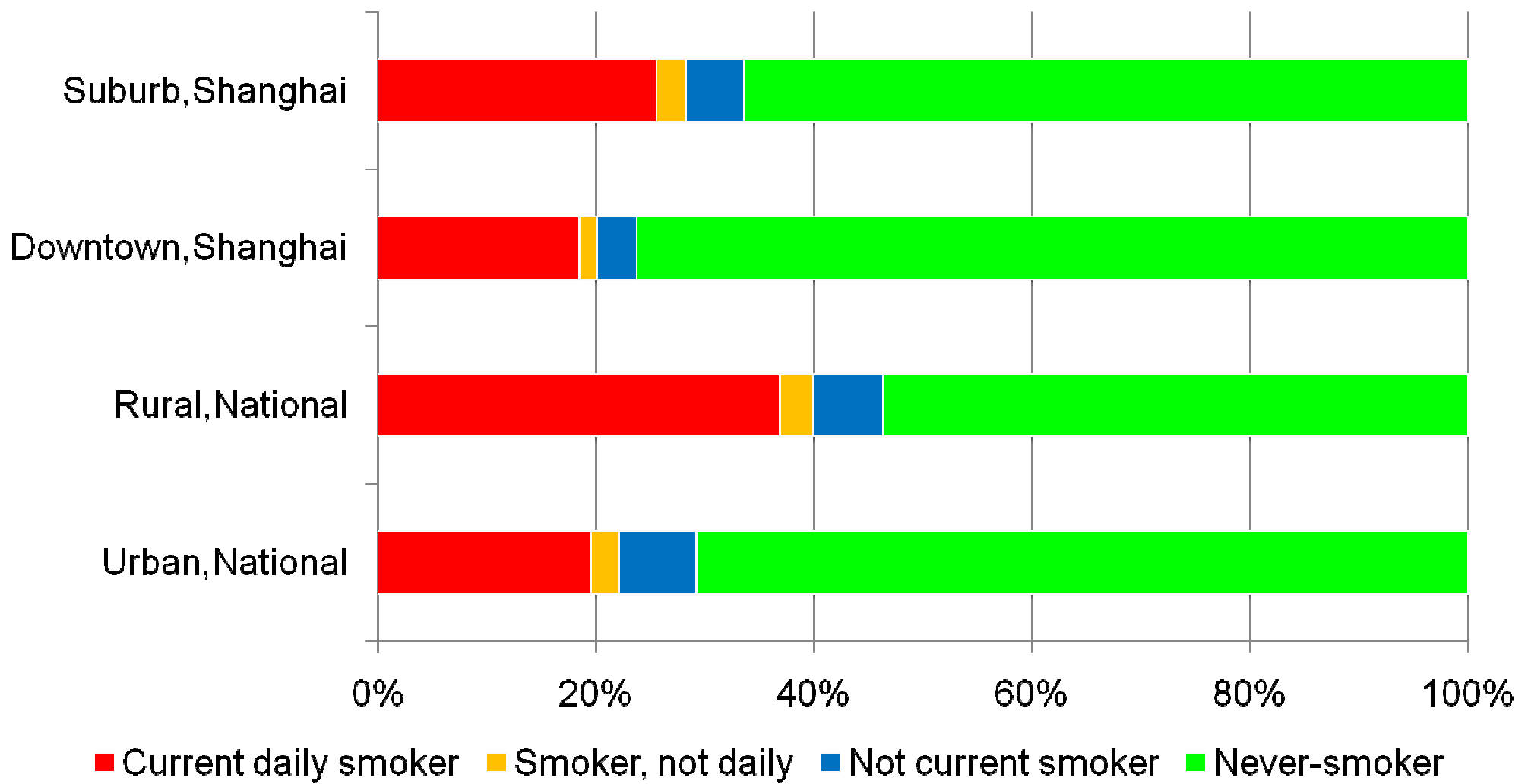
Tobacco smoking by age groups

China National

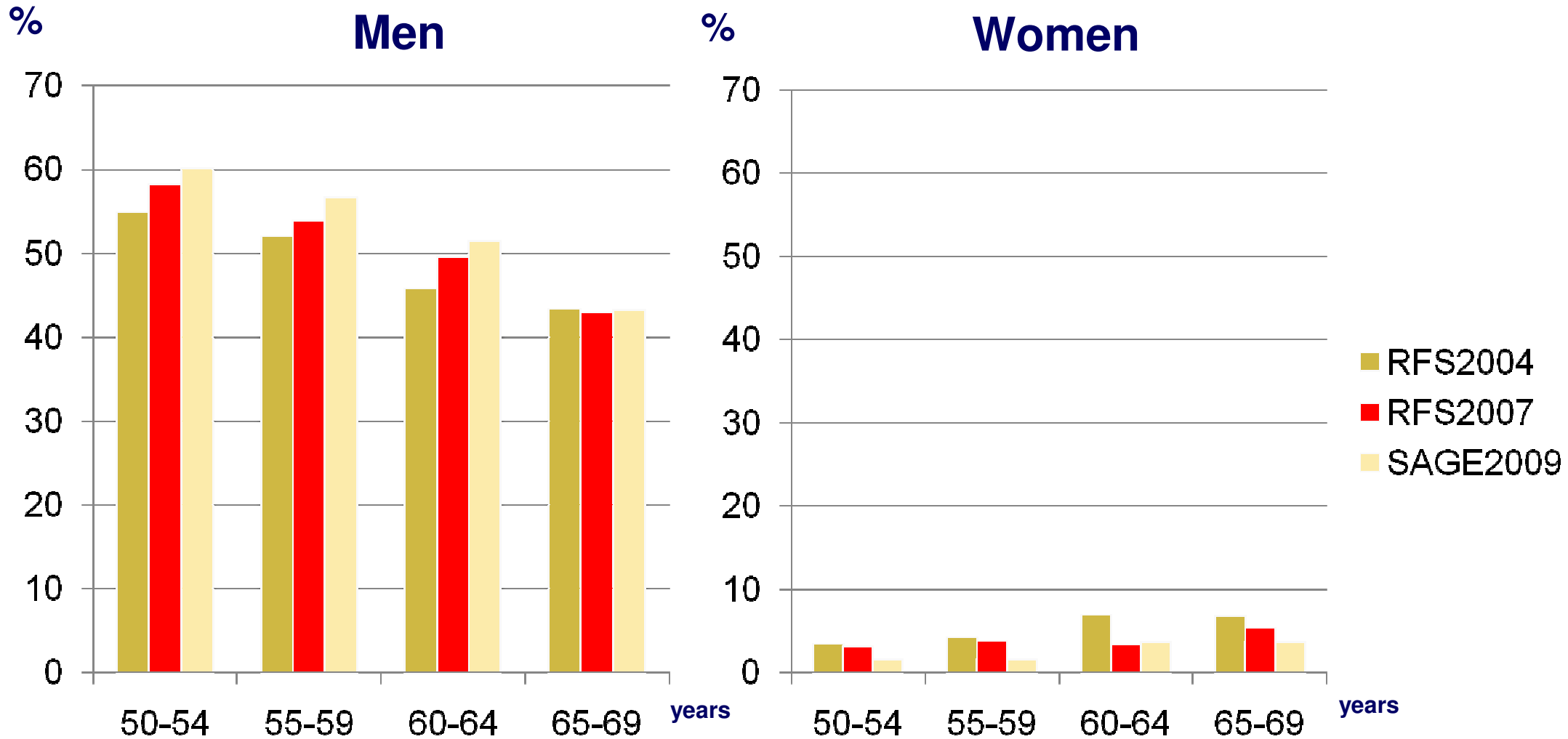
Shanghai



Tobacco smoking by area



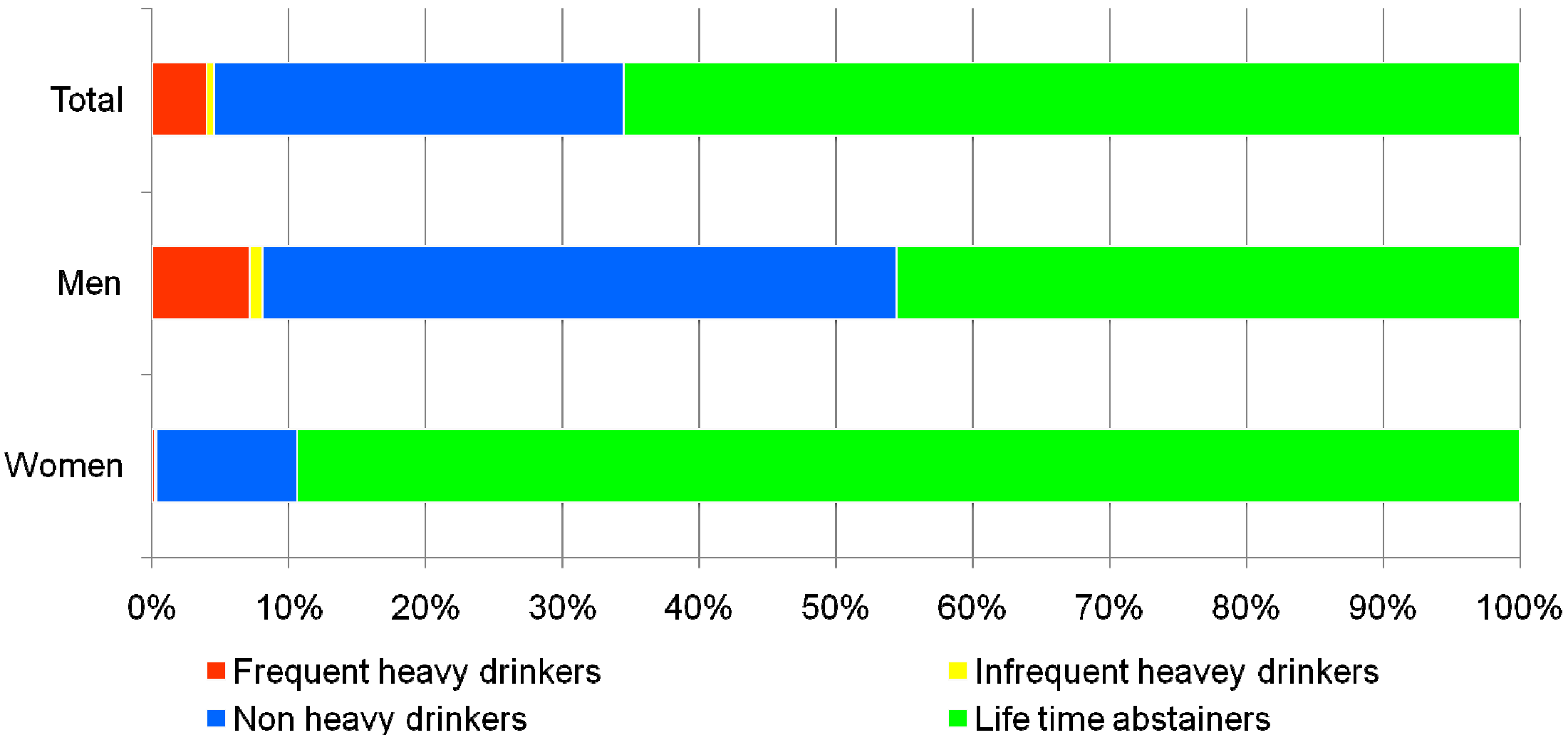
Trend of current daily smoking by age group



Alcohol drinking

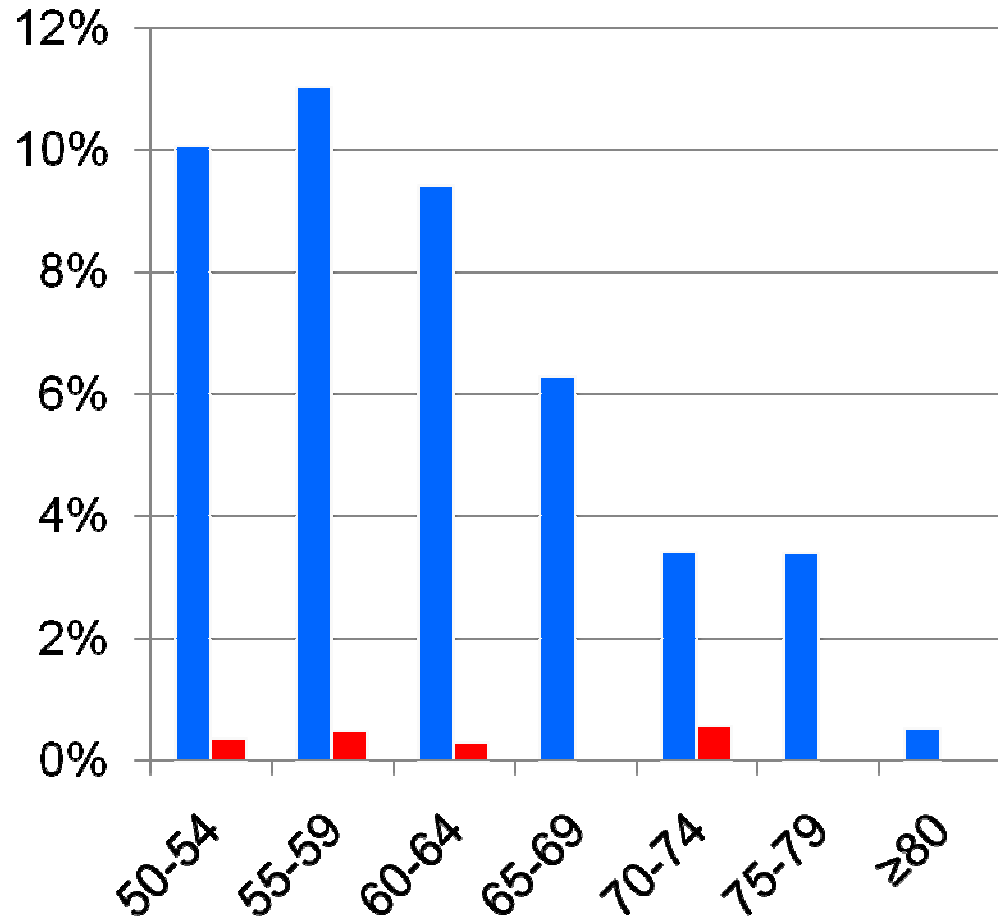
- Alcohol Drinking Categories
 - Life time abstainers: never consumed alcoholic beverage;
 - Non heavy drinkers: <2 days per week with 5 or more standard drinks for men and 4 or more for women (in last 7 days);
 - Infrequent heavy drinkers: 2-3 days per week with 5+ standard drinks and 4 or more for women (in last 7 days);
 - Frequent heavy drinkers: 4 or more days per week with 5+ standard drinks and 4 or more for women (in last 7 days).
- Alcohol drinking in last 30 days
 - Ever drinking of alcoholic beverage in last 30 days

Alcohol drinking by gender

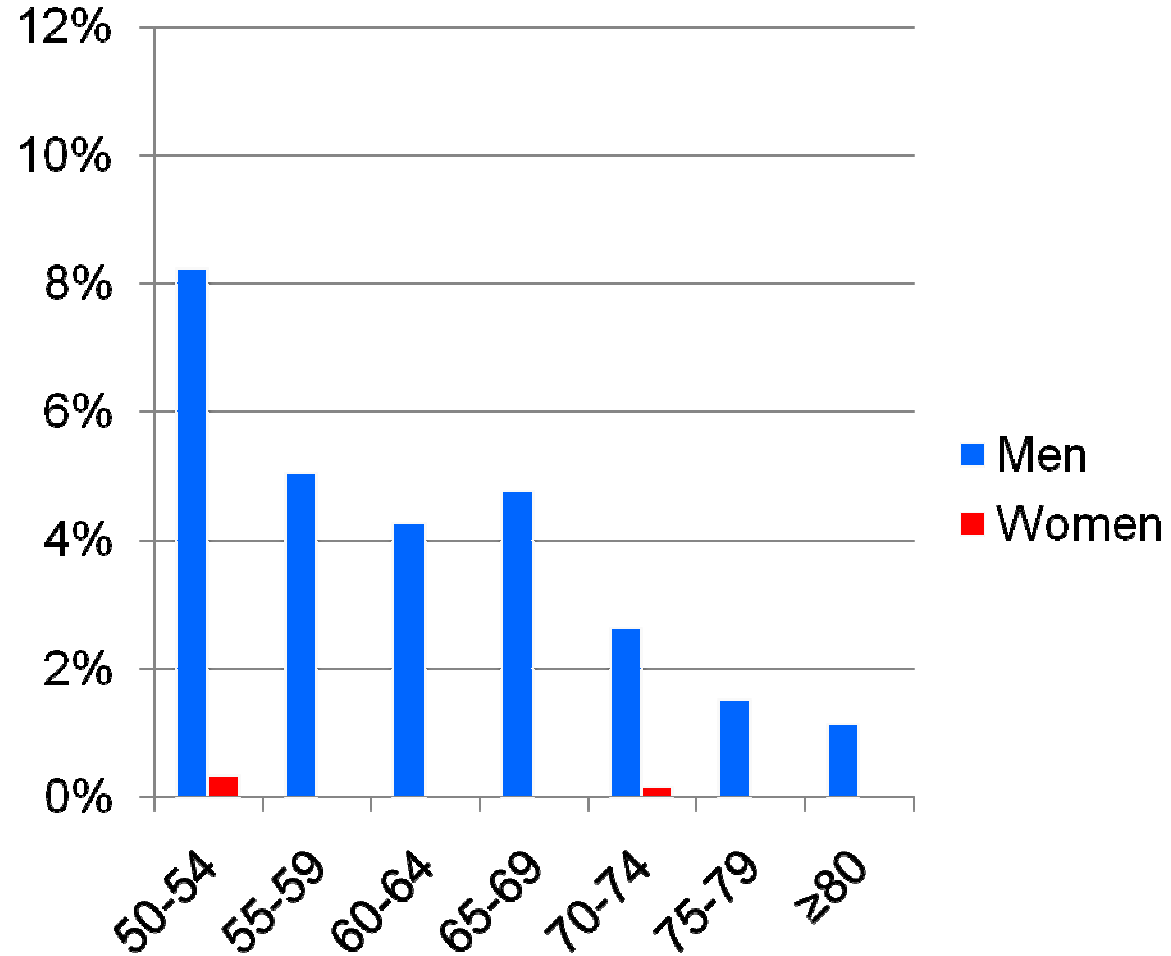


Prevalence of heavy drinking by gender, age group

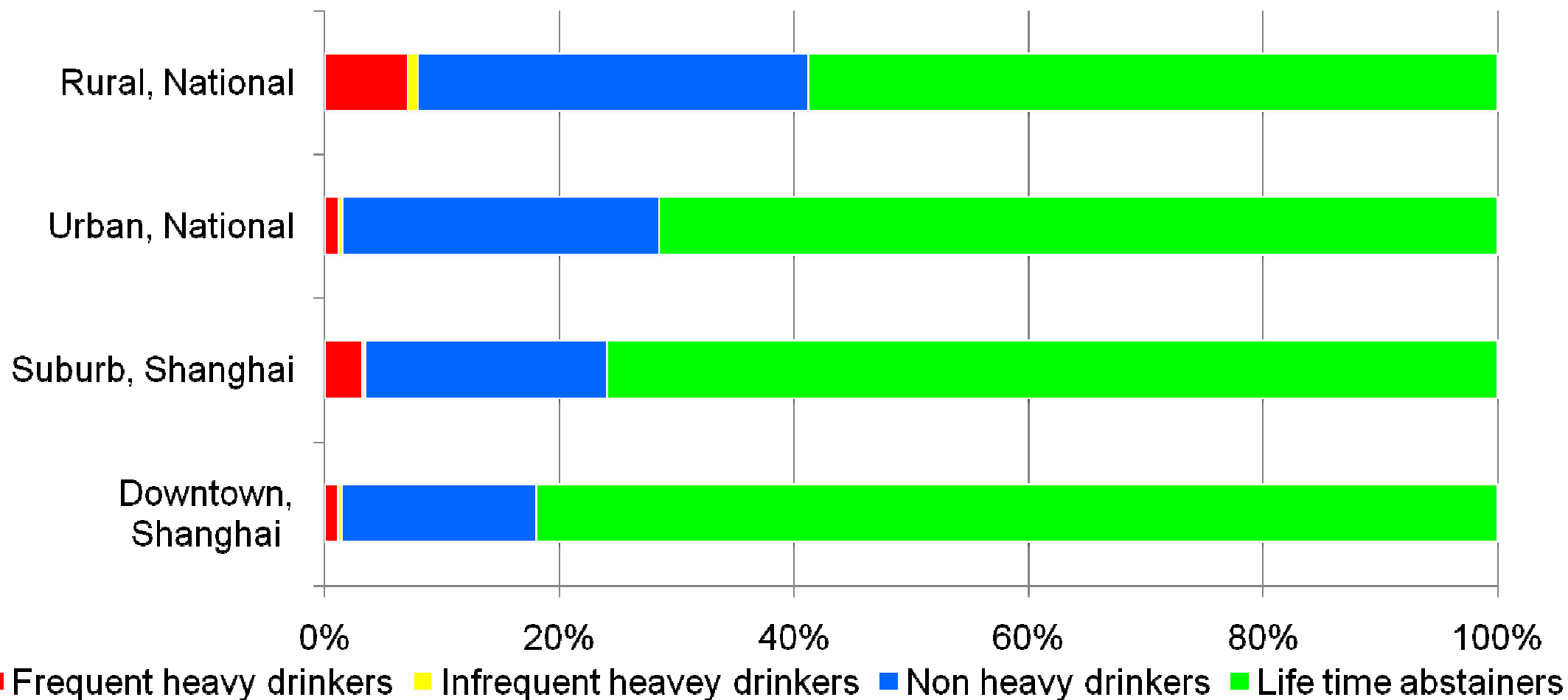
China National



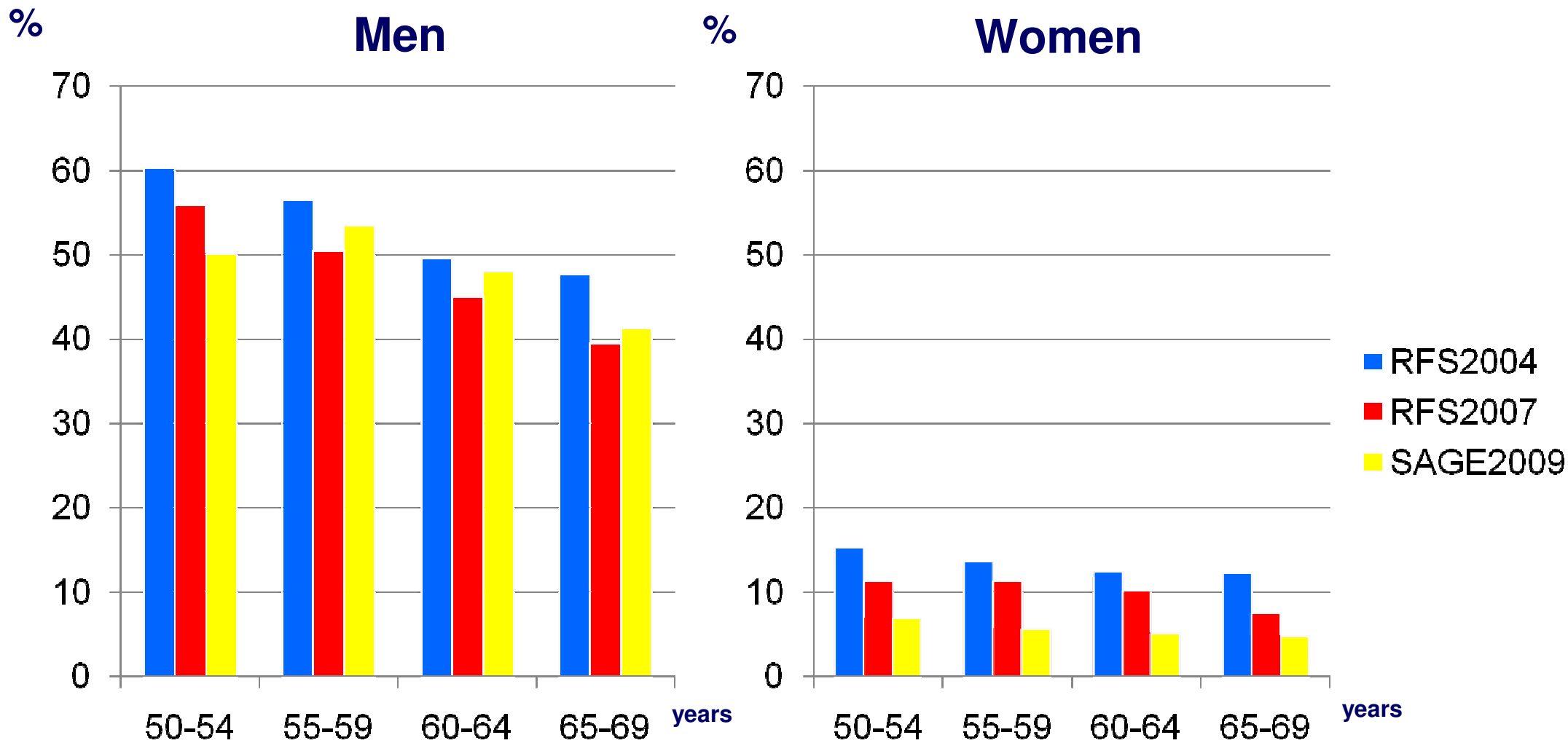
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Alcohol drinking by area



Trend of drinking in last 30 days by age group

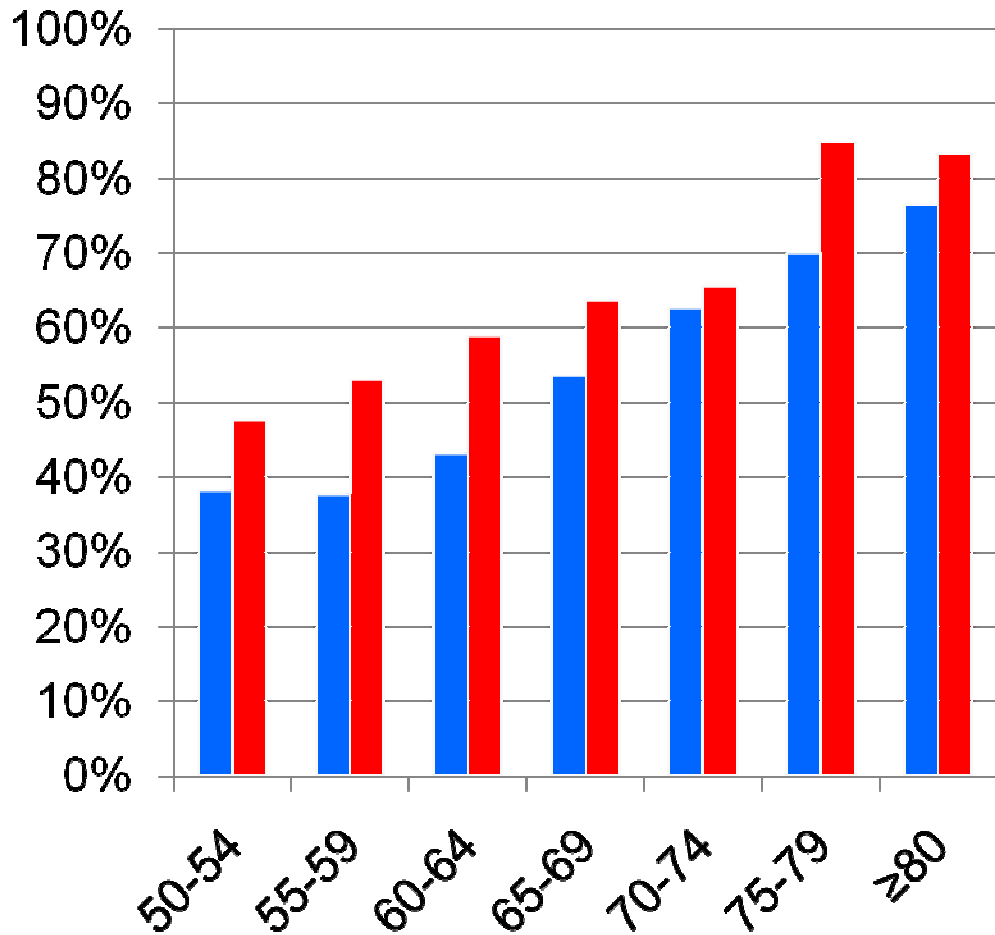


Physical activity

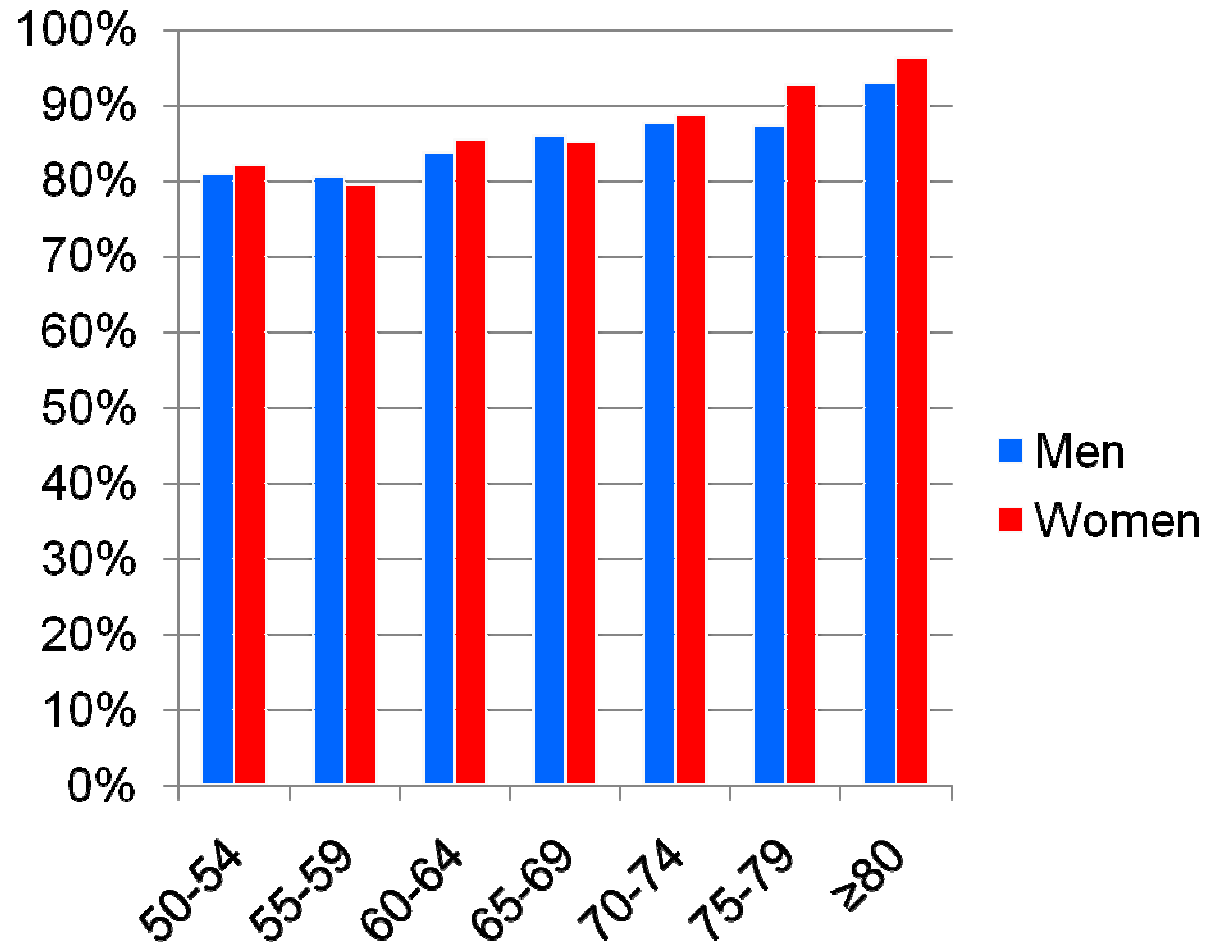
- Insufficient physical activity
 - spending an average of less than 150 minutes per week (in last 7 days) on walking/moderate activity/vigorous activity.

Prevalence of insufficient physical activity, by age group and gender

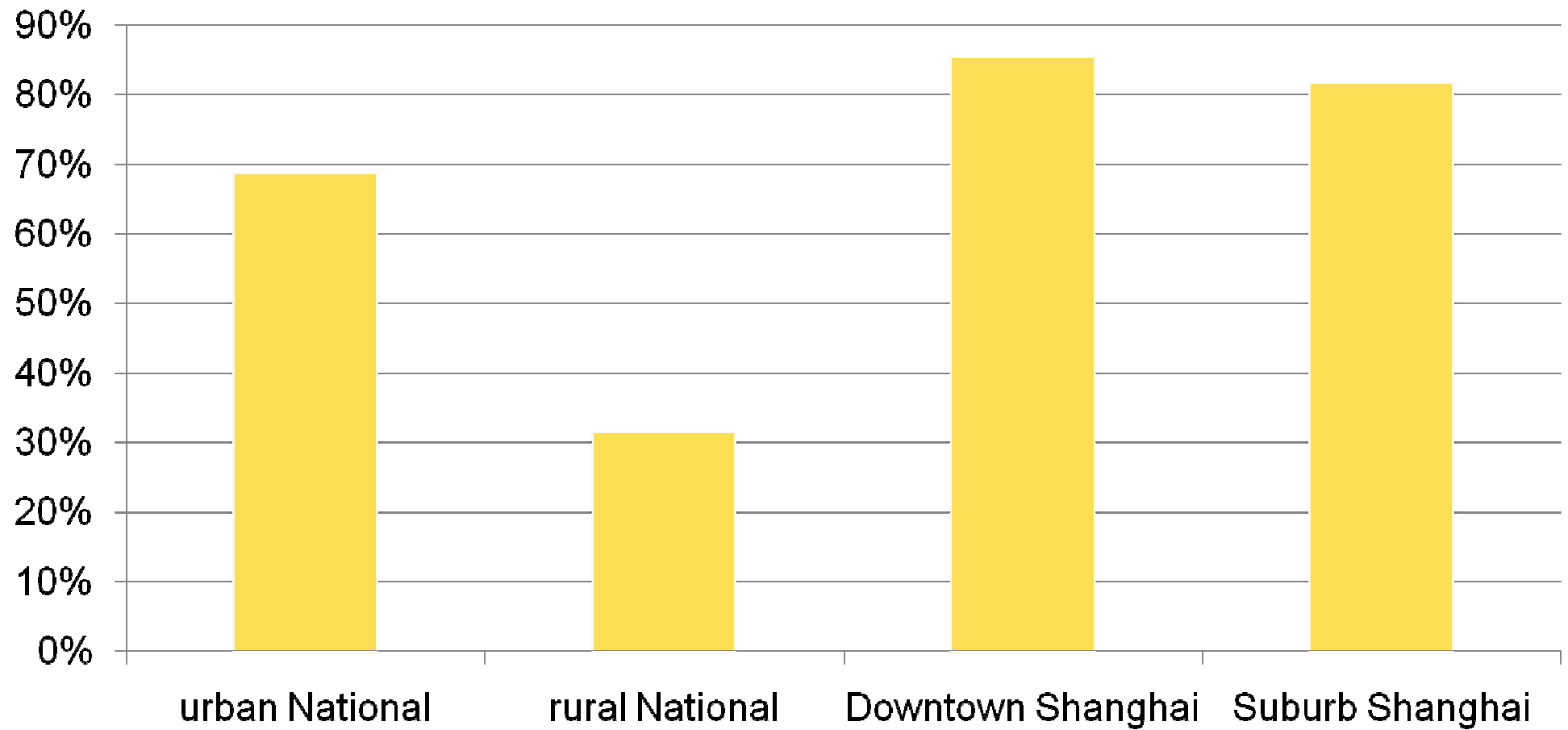
China National



Shanghai



Prevalence of insufficient physical activity by area



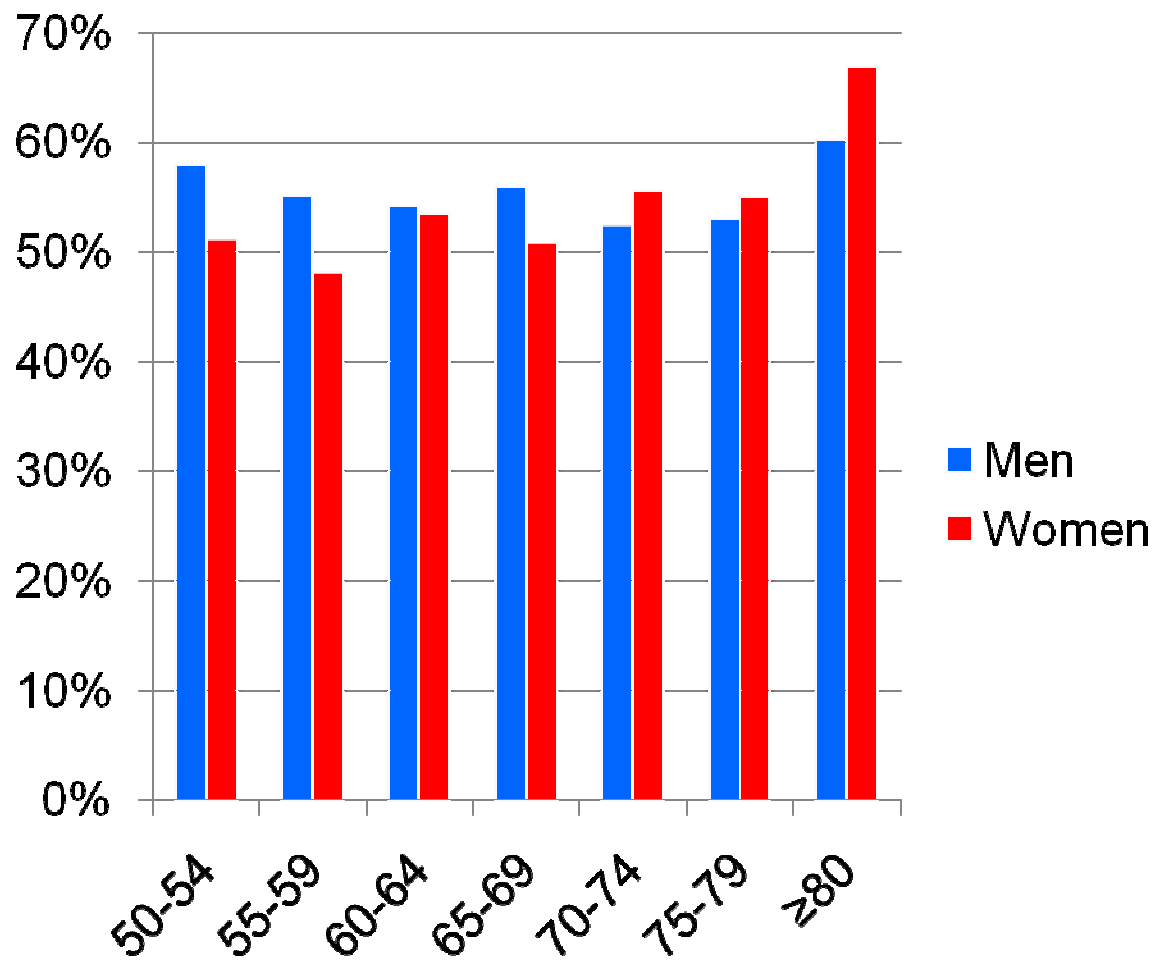
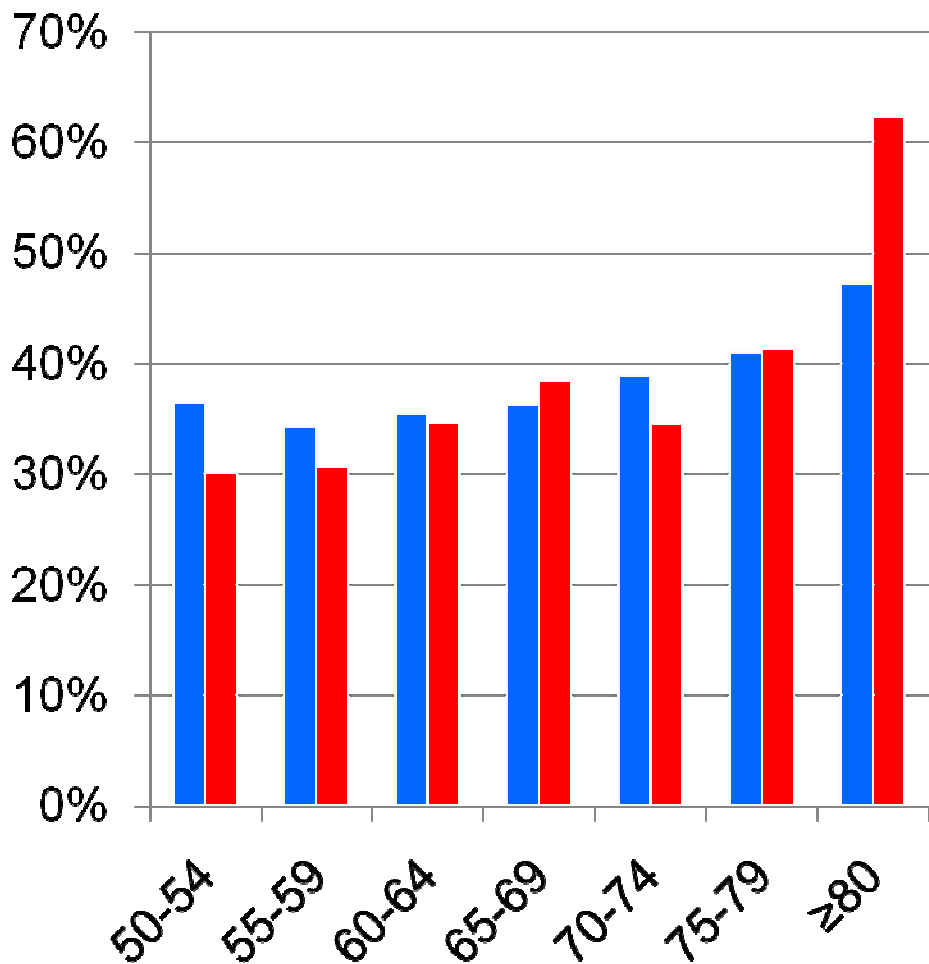
Fruit and vegetable intake

- Insufficient intake of fruit and vegetables: less than 5 servings in a typical day on average in the last 7 days

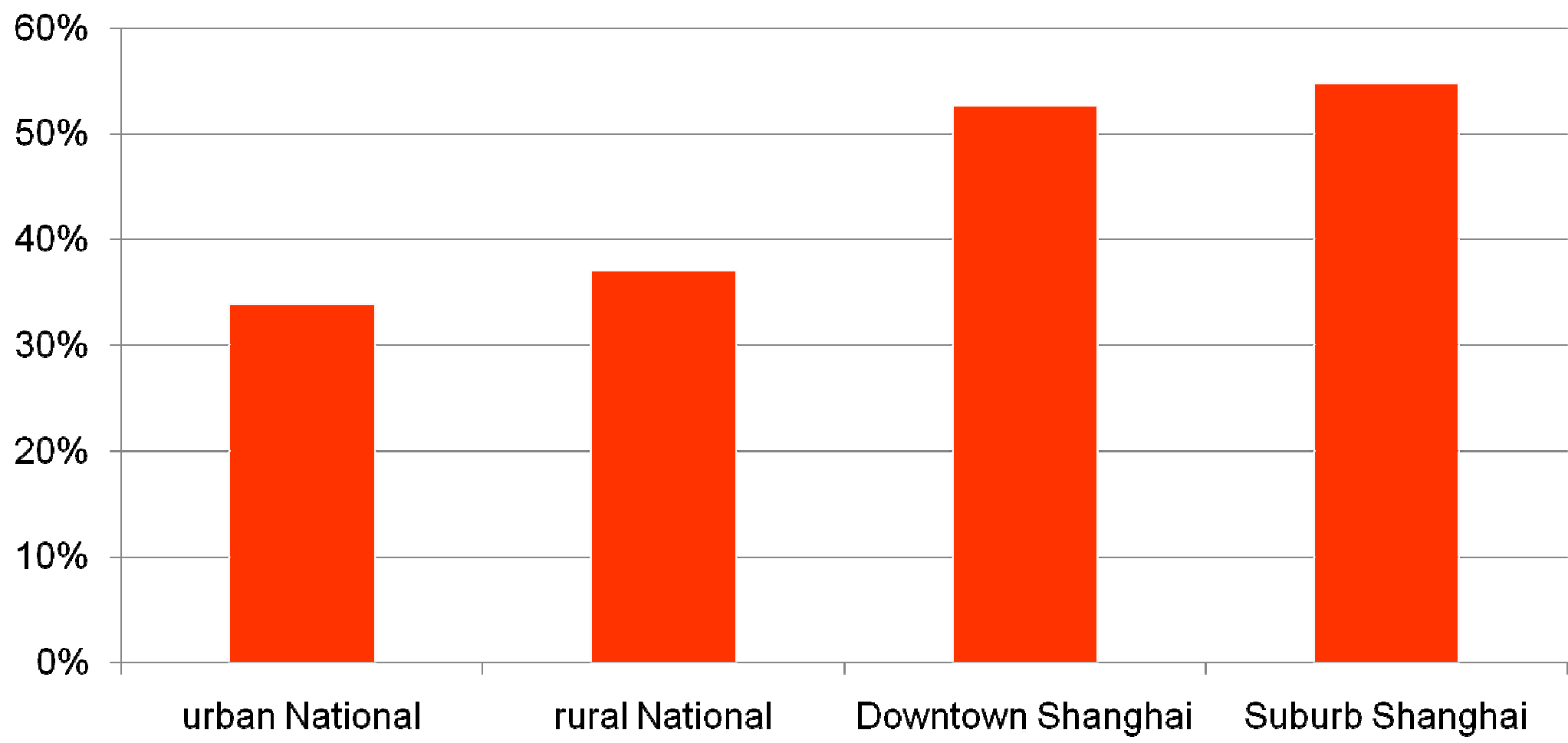
Prevalence of insufficient fruit and vegetable intake by age group and gender

China National

Shanghai



Prevalence of insufficient fruits and vegetables by area



Overweight and obesity

● BMI Categories

– WHO standard:

- Underweight BMI < 18.5
- Normal $18.5 \leq \text{BMI} < 25.0$
- Overweight $25.0 \leq \text{BMI} < 30.0$
- Obesity $\text{BMI} \geq 30.0$

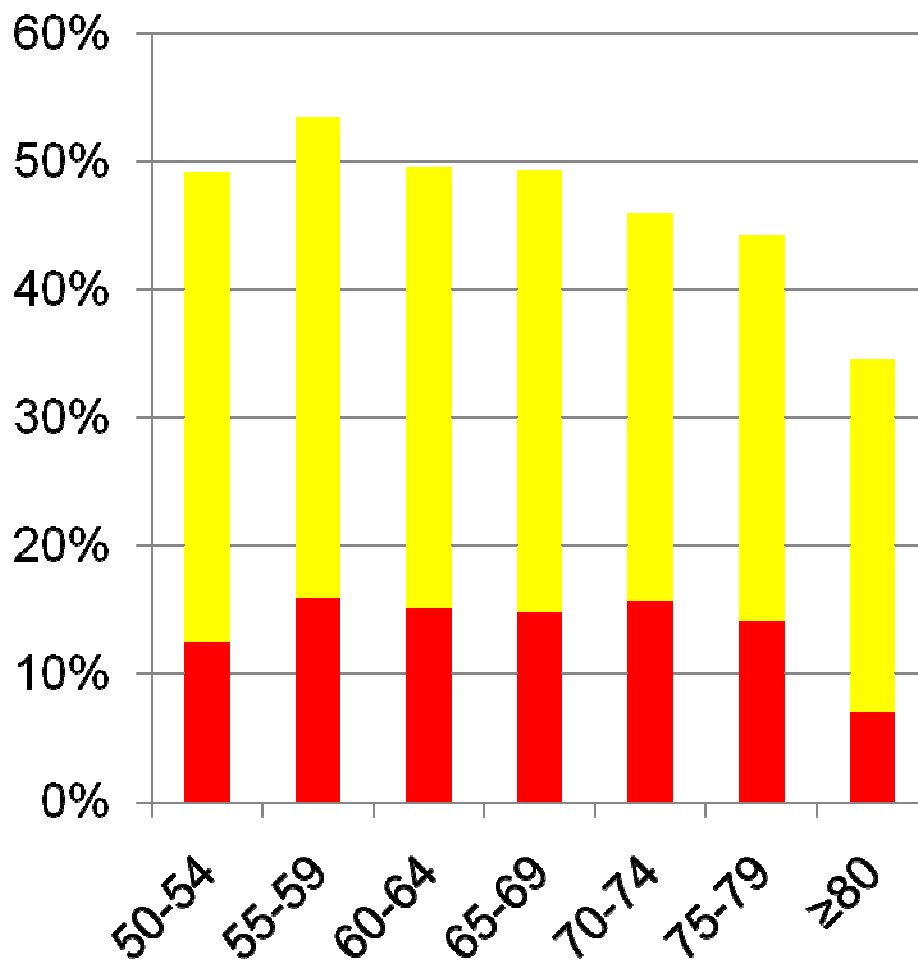
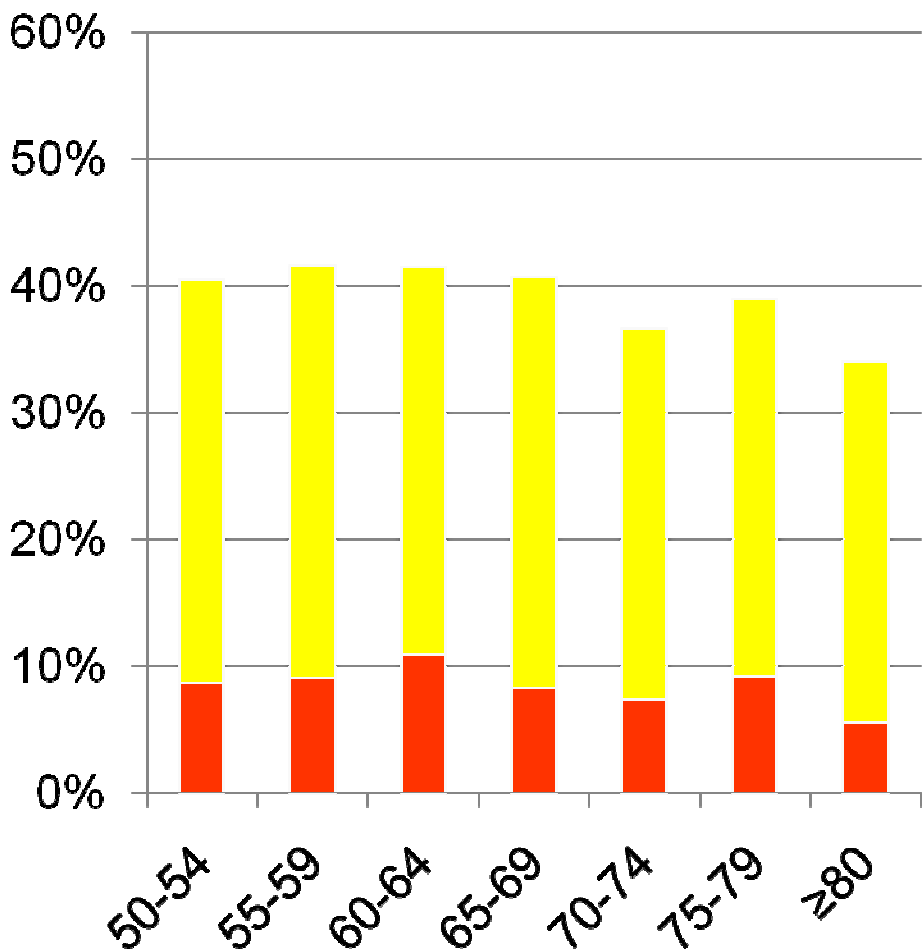
– Chinese standard:

- Underweight BMI < 18.5
- Normal $18.5 \leq \text{BMI} < 24.0$
- Overweight $24.0 \leq \text{BMI} < 28.0$
- Obesity $\text{BMI} \geq 28.0$
- From Chinese Obesity Task Force

Overweight and obesity (Chinese Standard)

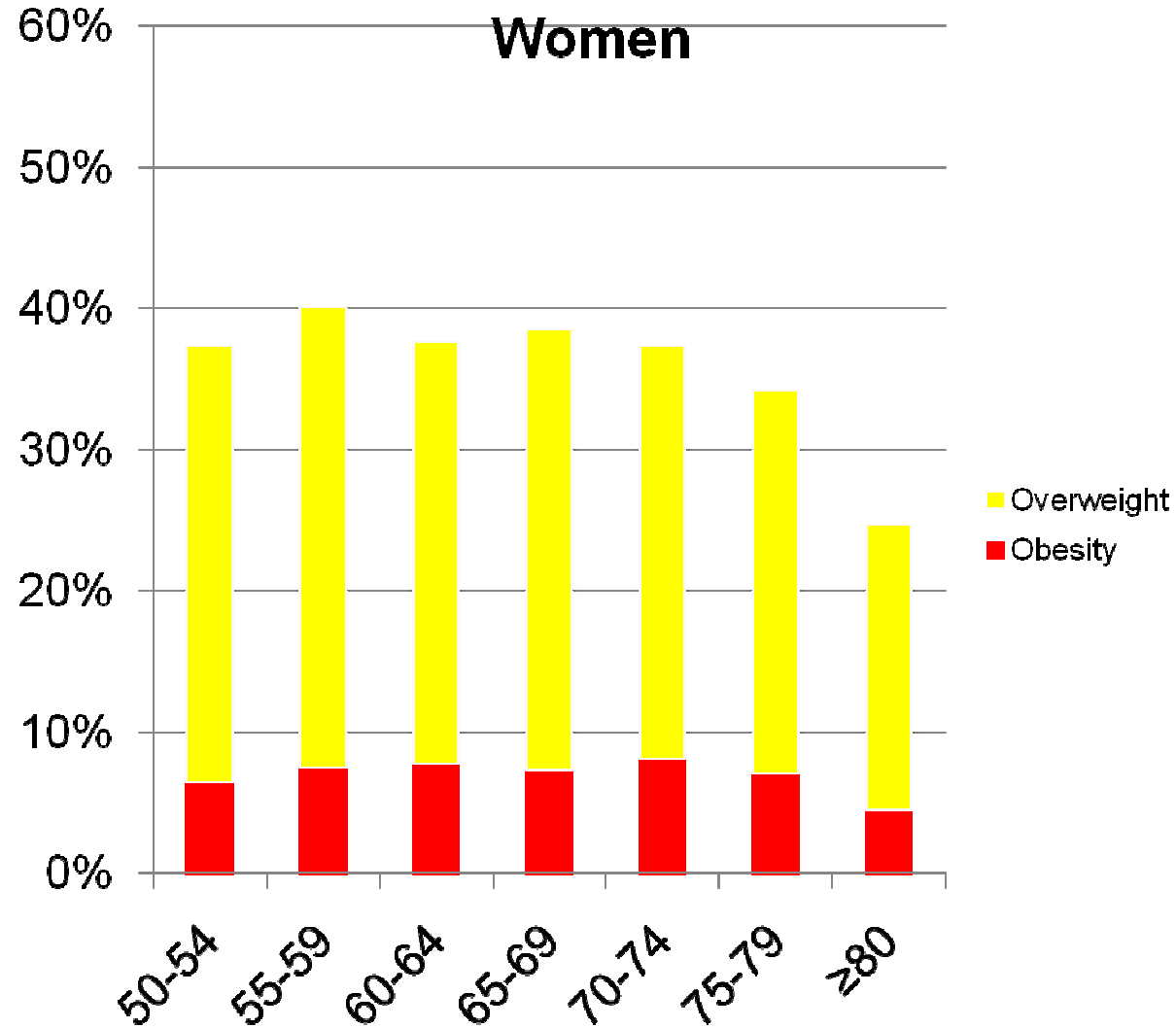
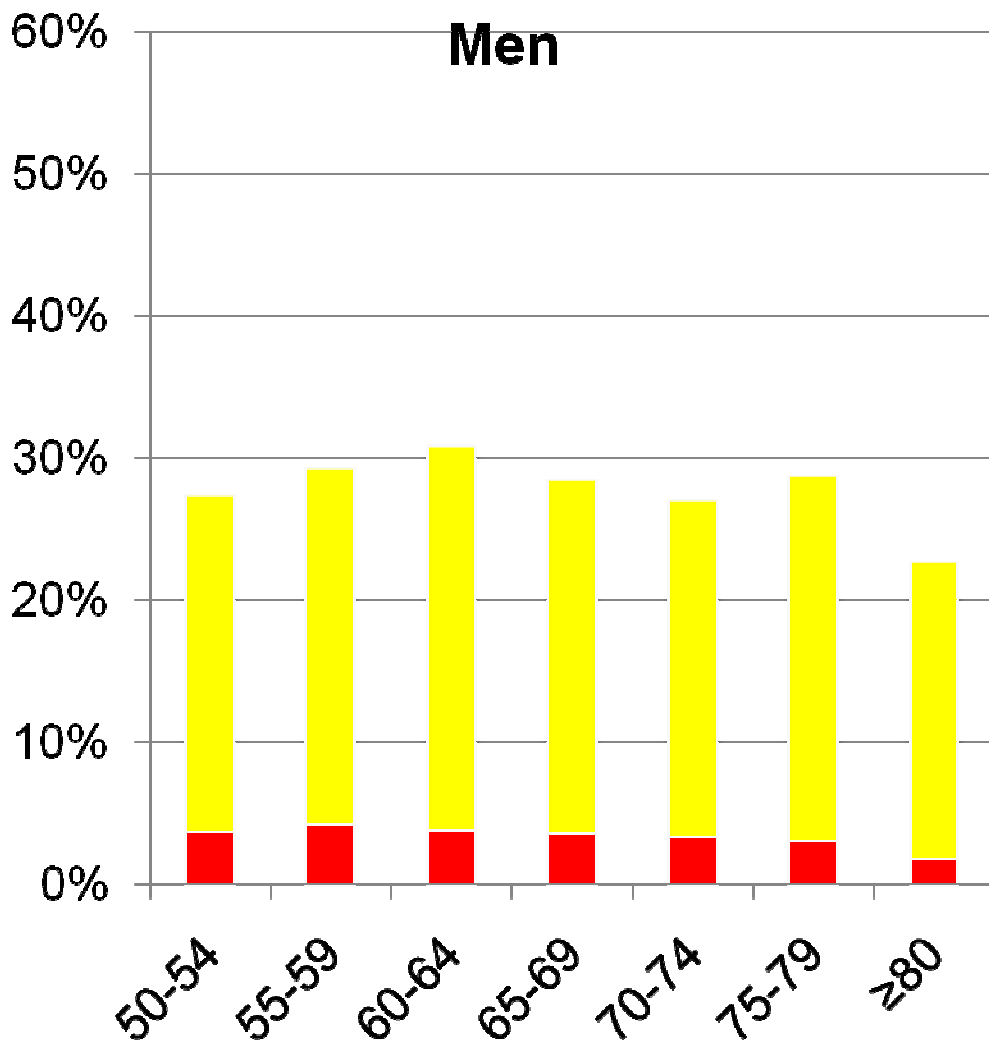
Men

Women

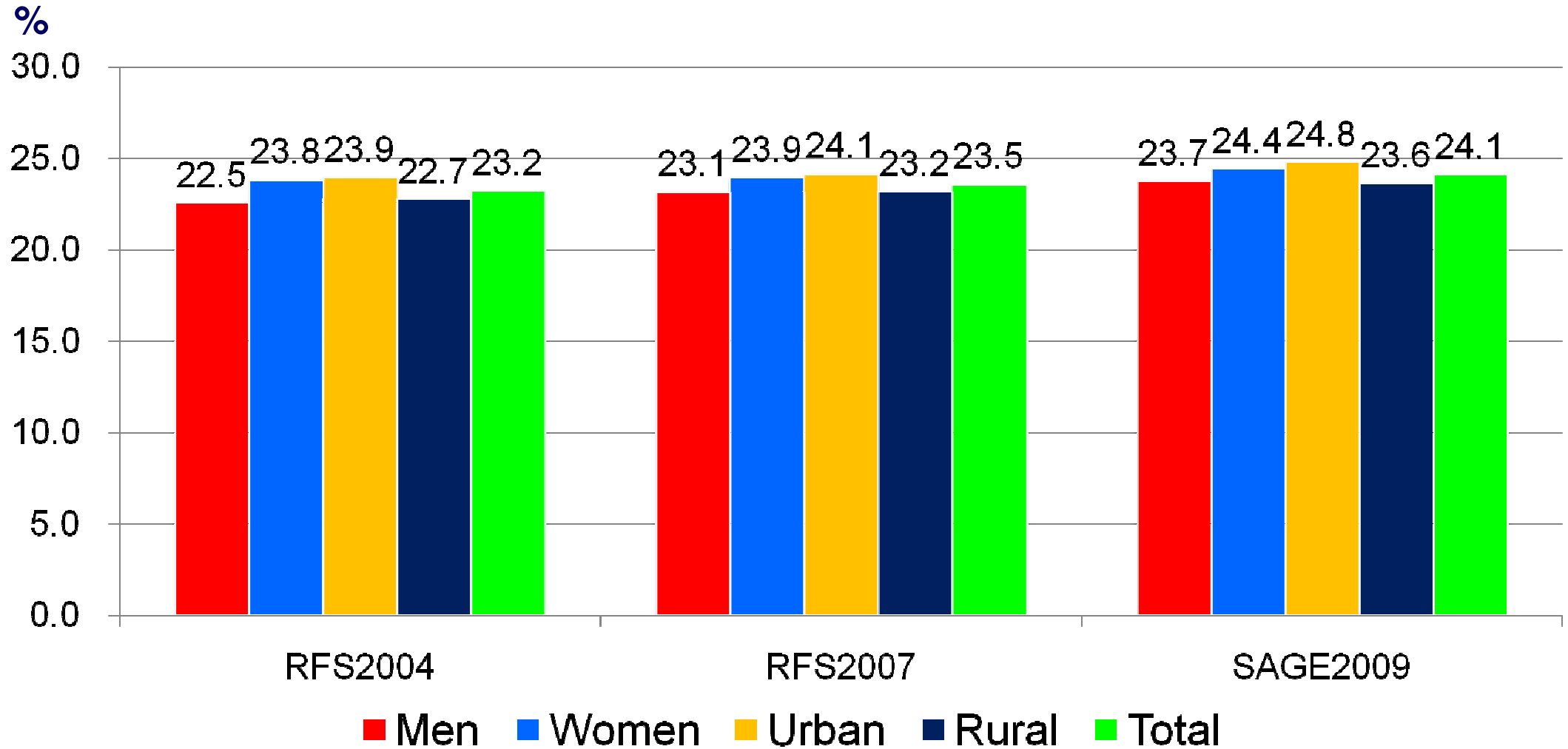


Overweight
 Obesity

Overweight and obesity (WHO Standard)



Comparison of SAGE to NCDRFS – Mean BMI



Central obesity

- **WHO standard:**

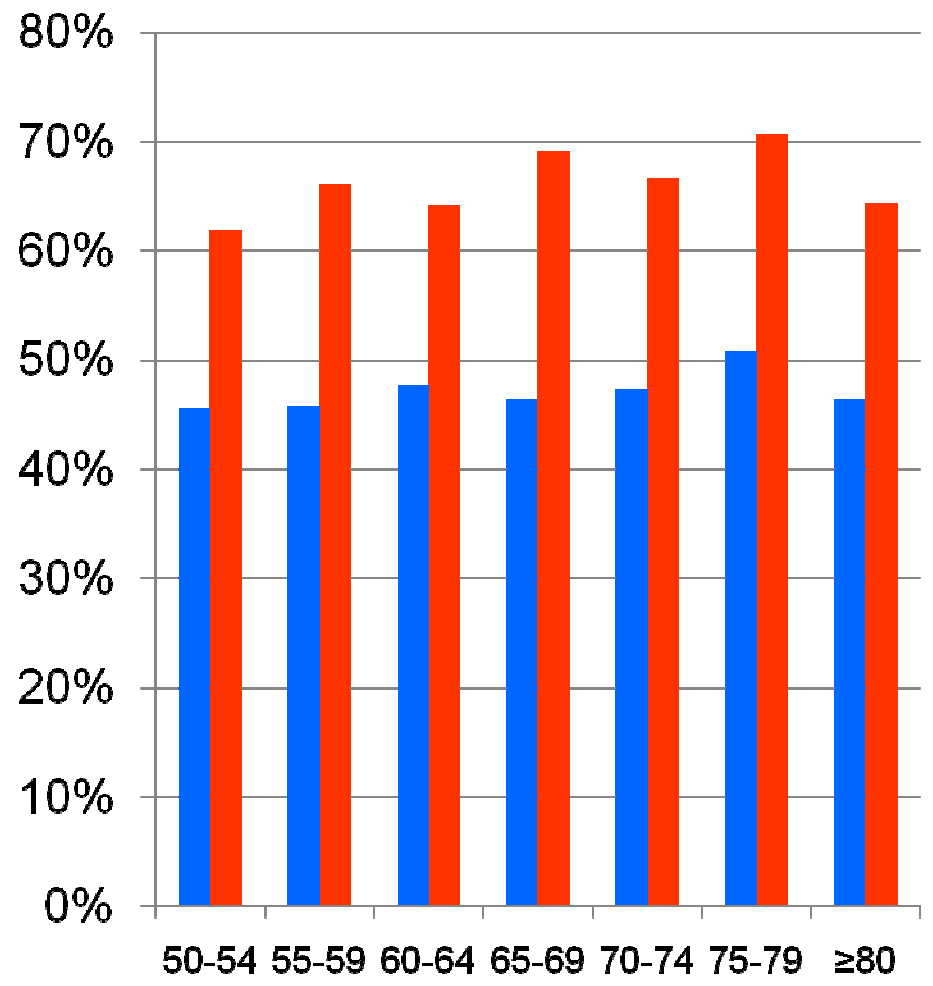
- WHR(Waist-Hip Ratio) >0.9 for men; >0.85 for women.

- **Chinese standard:**

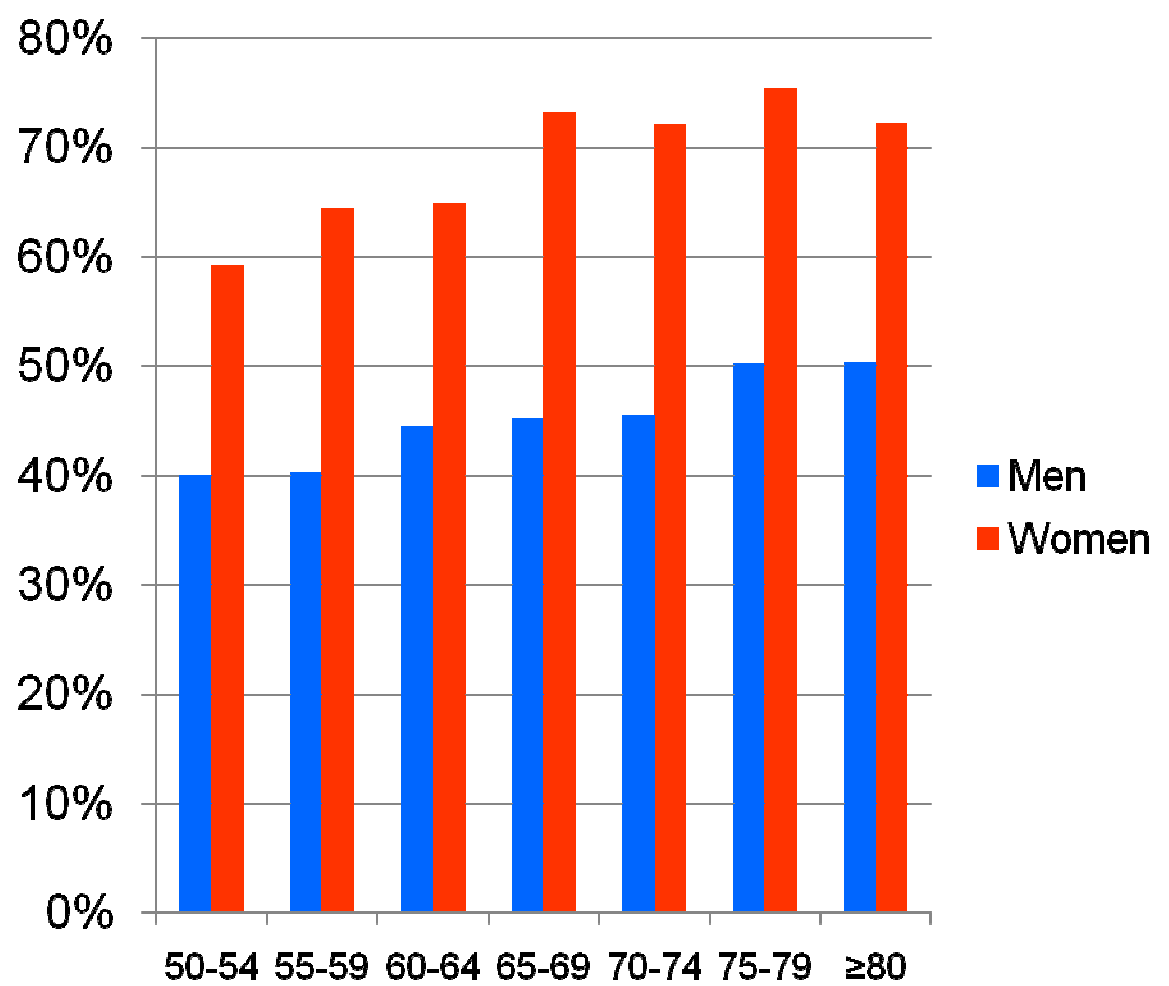
- Waist circumference $\geq 85\text{cm}$ for men; $\geq 80\text{cm}$ for women.
- From Chinese Obesity Task Force

Prevalence of central obesity by gender and age groups

Chinese Standard



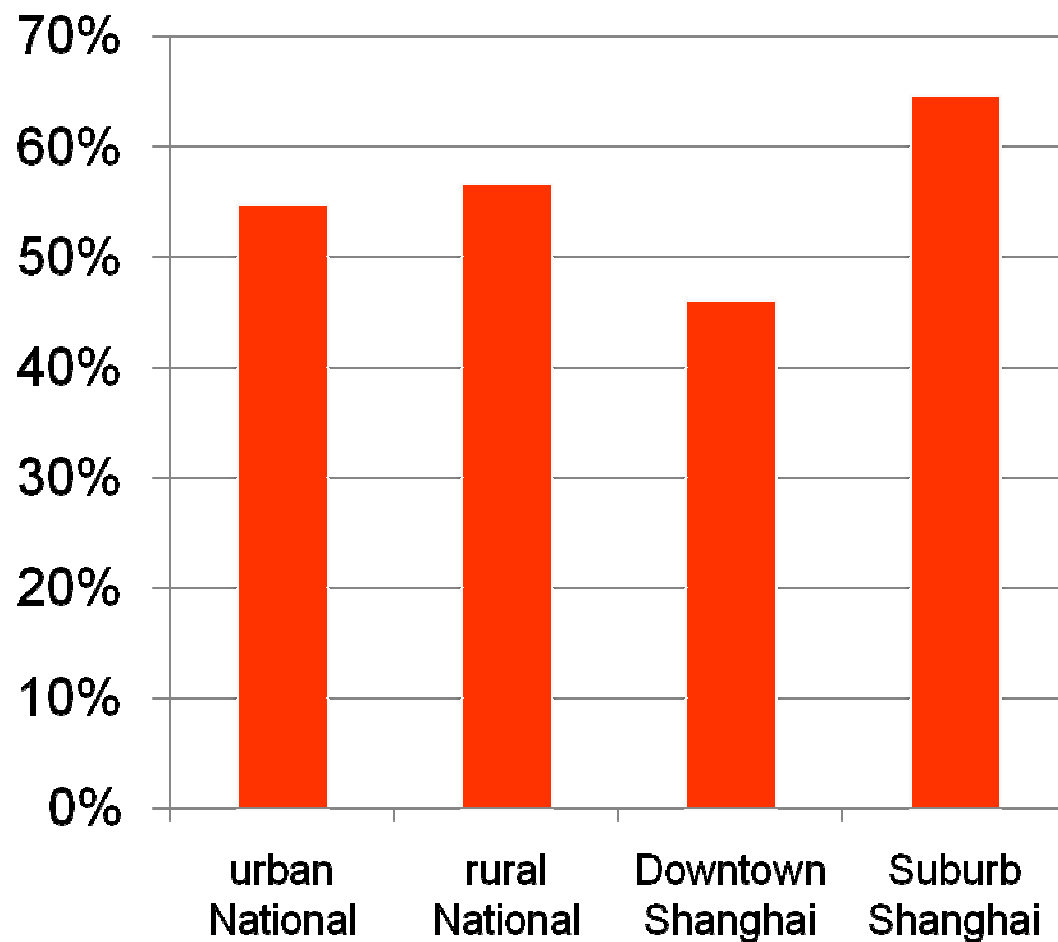
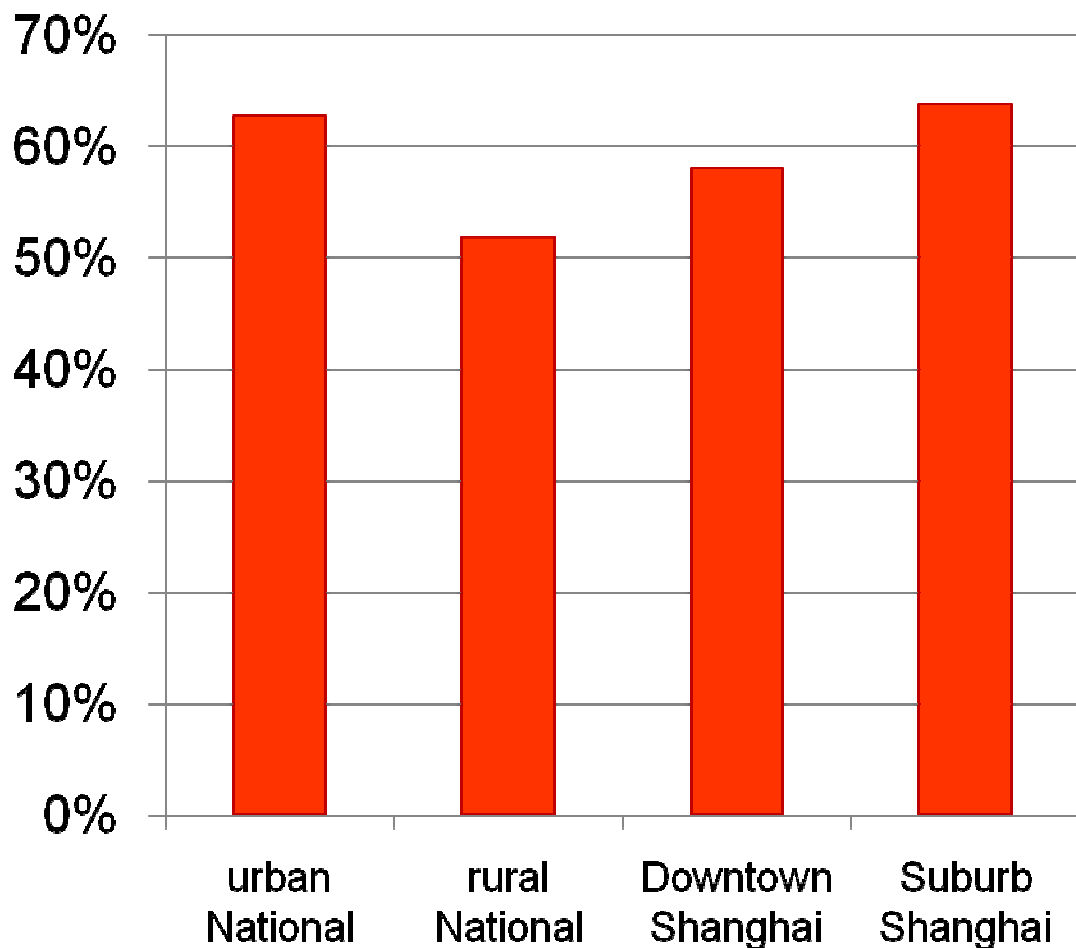
WHO Standard



Prevalence of central obesity by area

Chinese standard

WHO standard

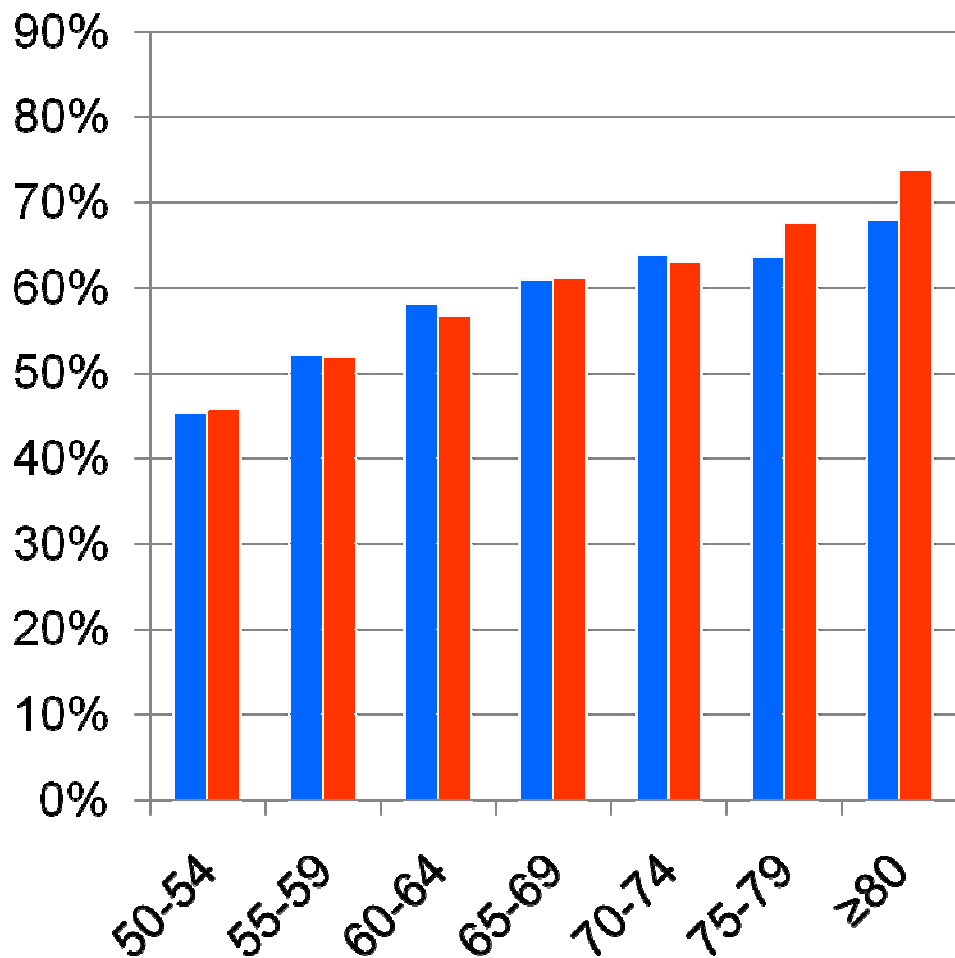


Raised blood pressure

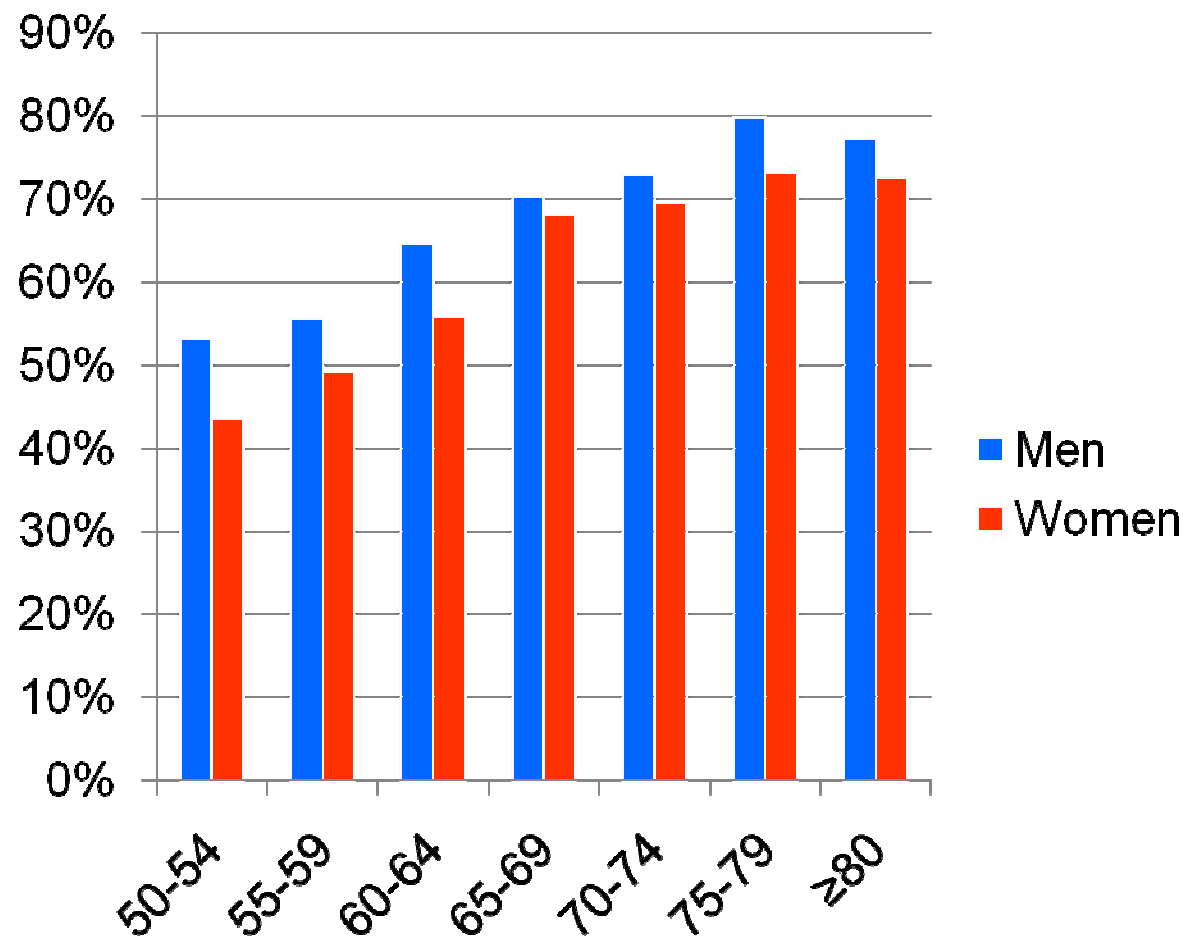
- Raised Blood Pressure: $SBP \geq 140$ or $DBP \geq 90$

Prevalence of raised blood pressure, by age group and gender

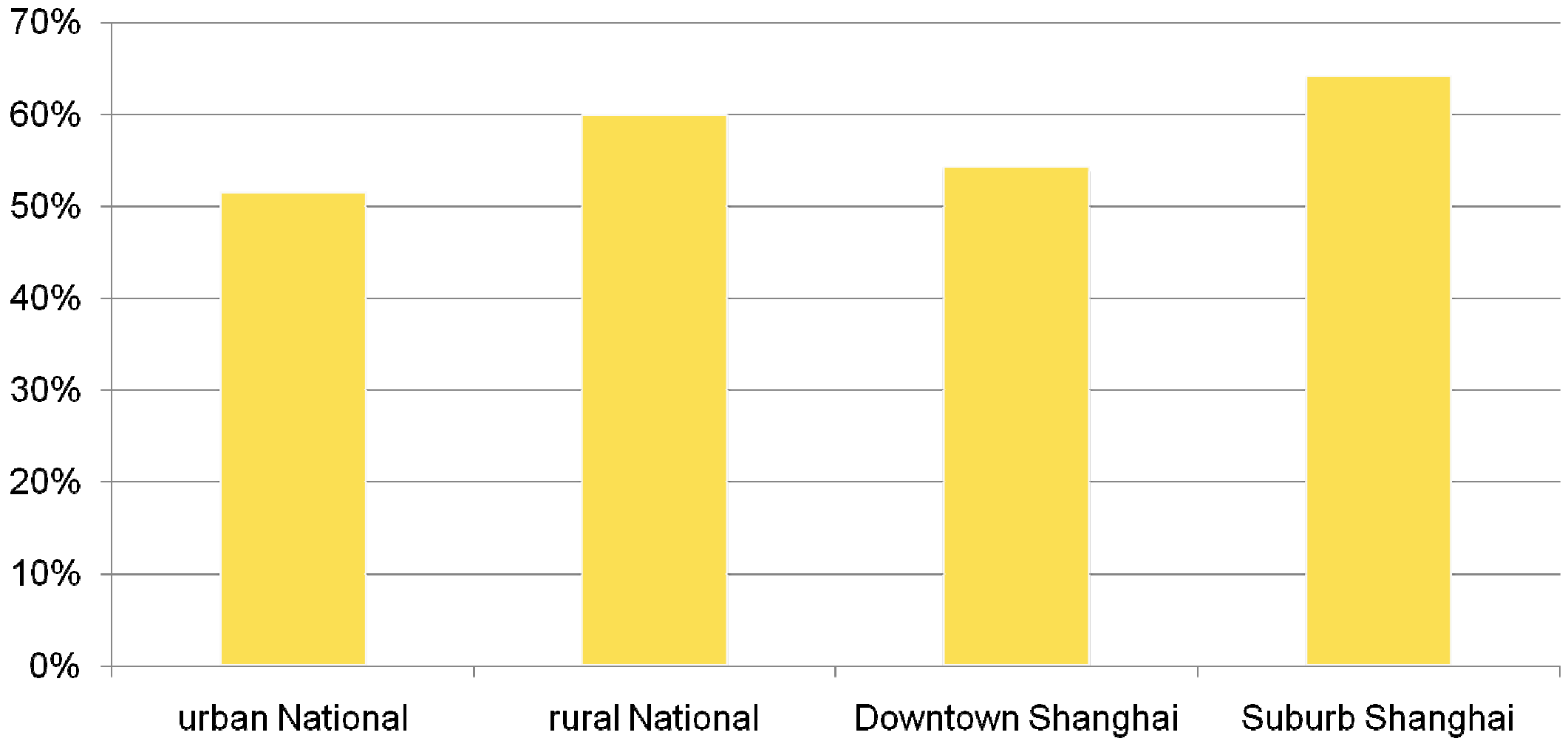
China National



Shanghai



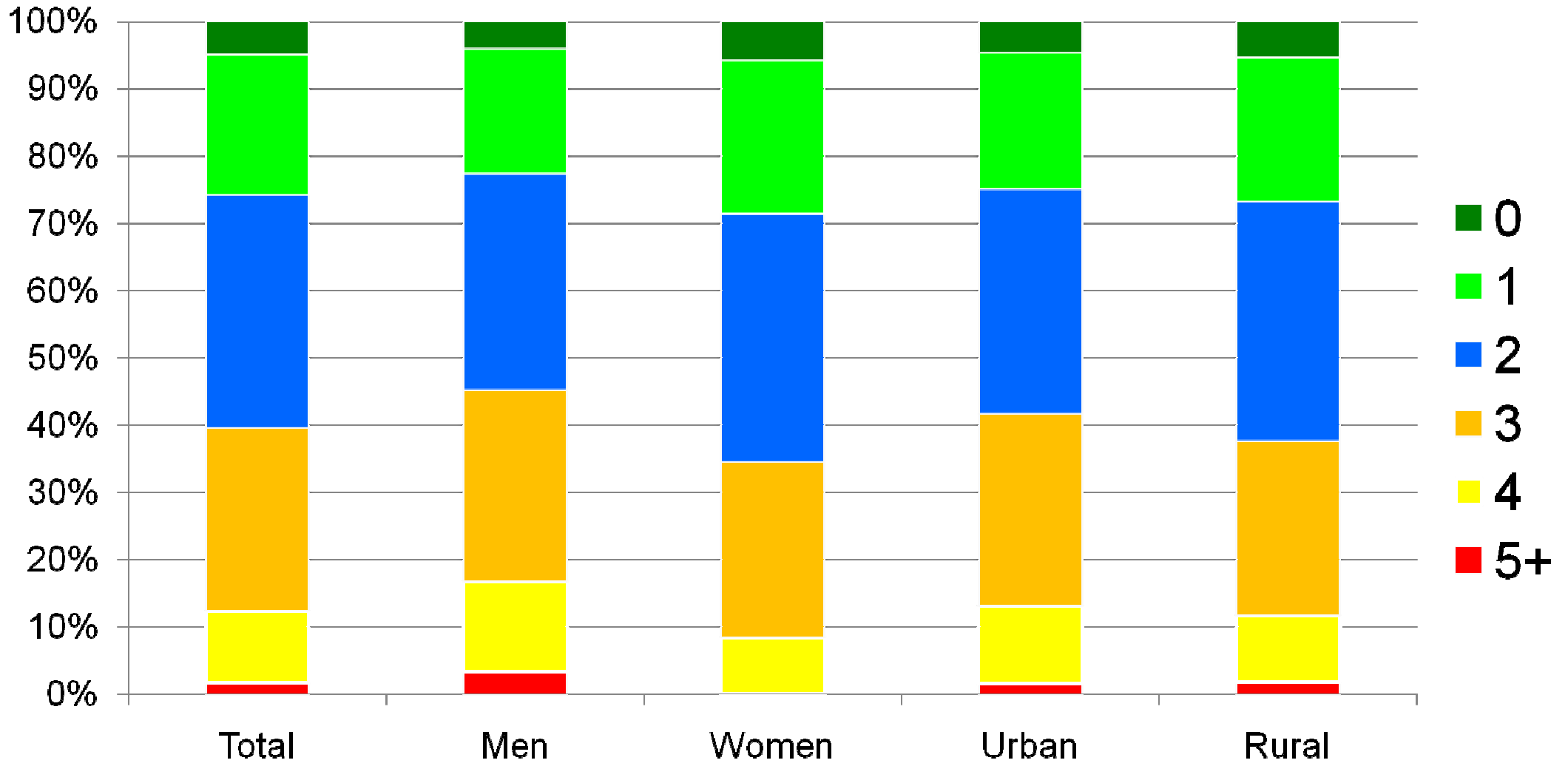
Prevalence of Raised blood pressure by area



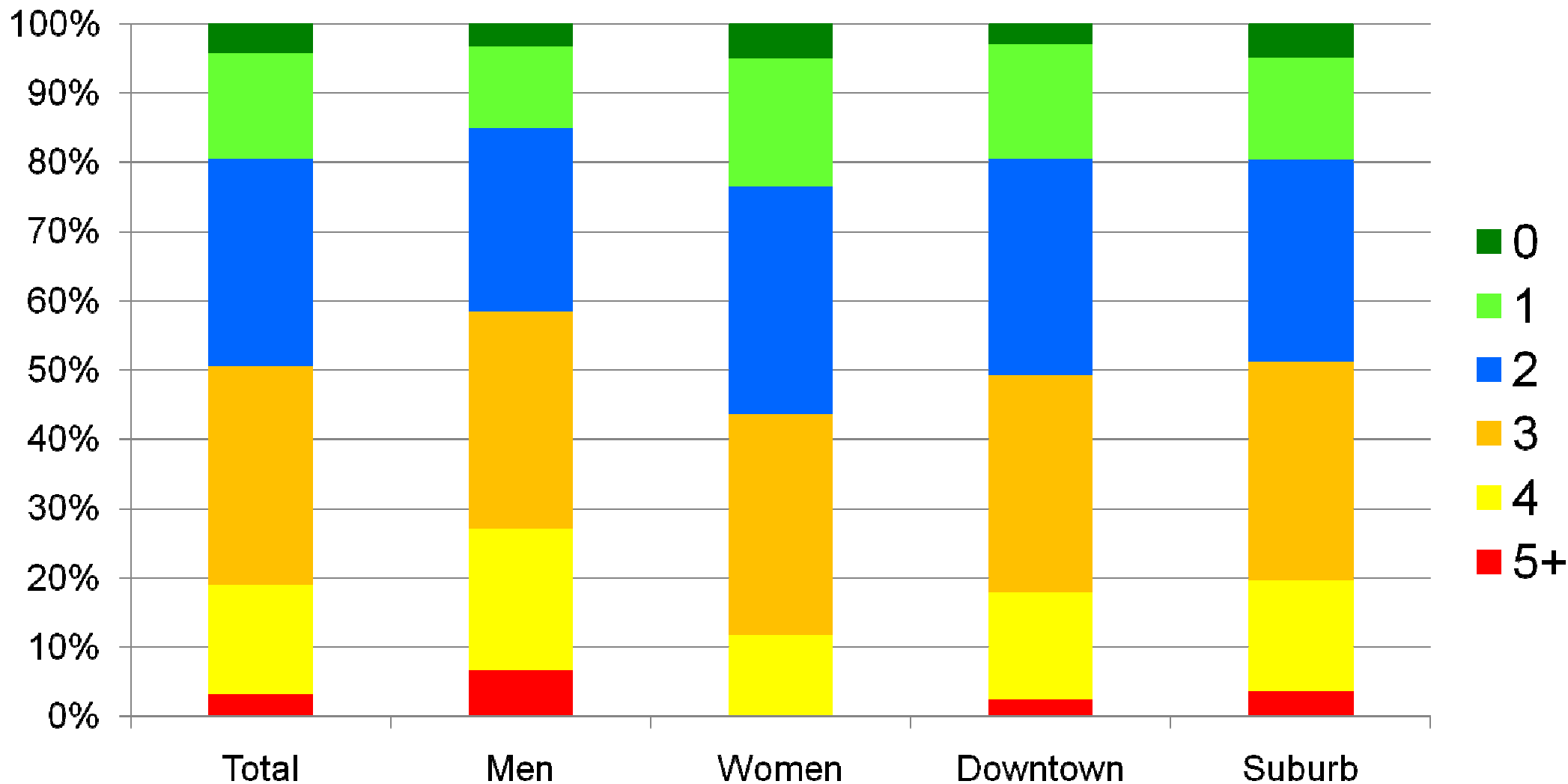
Accumulation of selected risk factors

- Six selected risk factors
 - Current daily smoking
 - Heavy drinking
 - Insufficient intake of vegetables and fruits
 - Insufficient physical inactivity
 - Overweight or obesity or central obesity
 - Raised blood pressure

Frequency of selected risk factors (National)



Frequency of selected risk factors (Shanghai)



Conclusions

- Prevalence rate of most NCD risk factors remains relative high in Chinese older adults and have not clue to decline
- Distribution of NCD risk factors prevalence rate varies in different age group, genders and areas.
- The lower prevalence of certain risk factor in older age groups may reflects of health survival effect or change of behavior after disease.
- Effective, acceptable intervention measures must be taken to reverse the increasing trend.
- Limitation: Preliminary data with out weighting

Future directions

- Follow up of National sample and Shanghai sample
- In-depth analysis, utilization of SAGE result and disseminate to policy-makers and other stakeholders
- To advocate and help provincial level governments collecting local oversample to get provincial representative sample in 31 provinces
- To apply SAGE methods to national Chronic Disease surveillance and other related survey
- To collaborate and communicate with other related ageing studies such as CHARLS, CHNS, etc

Thank you.

Welcome to China.

