

## Non-Communicable Diseases Risk Factors Surveillance in Iran

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### Abstract

**Background:** Non-communicable diseases cause more than 60% of disease burden and 70% death by 2020. NCD risk factors surveillance system is a global strategy to combat with this problem in the world. It has been established since 2004 in Iran

**Methods:** The first national surveillance risk factors of Non-communicable disease (SURFNCD) run as a cross sectional study on 89000 populations by applying who stepwise approach in January and February 2005.

**Result:** The prevalence of common risk factors were 14.2 current smokers, 32.5% did exercise at least 10 minutes in their free time in ages 15-64 yr, 7.7 diabetics and 25.2 hypertensive in ages 25-64 yr. Obesity, overweight and hypercholesterolemia were 14.8, 28.6 and 15.1, respectively in ages 15-64 yr.

**Conclusion:** Implementation of this system is one of the main concerns of Iranian prototype surveillance system and international concerned bodies such as World Health Organization. Multi-pronged policy and programmatic interventions promoting for maximum effectiveness are needed to conduct.

**Keywords:** *Risk factors, Non-communicable, Disease, Iran*

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### Introduction

Non-communicable diseases (NCDs) currently are cause of 43% of burden of diseases. It is expected NCDs are responsible for more than 60% of disease burden and 70% death by 2020. The most of this increase-about 85%- is attributed to developing countries. Because of epidemiologic transition characterized by a gradual shift from communicable to non-communicable diseases (NCDs), health care implications as well as socio-economic consequences with the increased life expectancy and rapid aging of the population in most middle income countries, World Health Organization (WHO) is recommending prevention and control program of NCDs, as a global strategy, by focusing on the major risk factors which are common in the most countries including: hypertension, diabetes, obesity and hyperlipidemia, smoking, inappropriate nutrition and inadequate physical activity. In Iran Non-communicable diseases cause the most disease burden: 45% for males and 33% for females from all-cause of total burden for both sexes. Obesity and overweight, arterial hypertension, inadequate phy-

sical activity, hypercholesterolemia, and addiction are the first 5 risk factors causing the highest proportion of burden: 68% of risk factors burden, 11% of total burden of disease, with 1.6 million DALYs (Fig. 1).

The overall goals of NCD risk factor surveillance system are strengthening or building the capacity to conduct risk factors surveillance within the frame work of an integrated, systematic and regularly approach aimed of sustainable collection of data and dissemination of produced information to inform health policies and programs at national level and coordinates affaires in all intra and extra sectors.

National NCD risk factor surveillance system of Iran has been establish since 2004 through which 4 national large-scale surveillance surveys conducted to find out the existing situation of NCD risk factors in 15 to 64 yr old in Iranian citizens and following the trend of these risks. This is one of the main concerns of not only Iranian prototype surveillance system but also international concerned bodies such as WHO.

## Material and Methods

The first national surveillance of risk factors of Non-communicable disease (SURFNCD), provided the demographic, anthropometric and biochemical characteristics on nation wide samples of Iranian aged 15-64, as well as their behavioral risk factors (Smoking, Unhealthy diet and Inadequate physical activity).

This cross-sectional health survey run on 89000 sample population, in January and February 2005 which was representative of rural and urban communities. Disease control units in 40 universities/medical schools were under the ministry of health serve as peripheral bodies of health system at its 28 provinces.

Surveillance site included a minimum size of 2500 participants across the age range of 15-64 yr (equal to 250 participants in each 10 yr age and sex group). The minimum sample size was considered for provinces with less than 2,500,000 population and larger sample size for more populated provinces.

Participants were selected by multi stage random cluster sampling and each cluster was a block in this study. Data were collected from 20 habitants of each cluster, including 2 male and female participants classified into 5 age groups. The participants gave verbal inform consent and survey received ethnics approval of the 40 universities. Health information of participants was recorded in three steps:

**Step 1:** health characteristics demographic data and behavioral assessment (diet, physical activity, tobacco use, history of hypertension and history of diabetes) in addition to sex, age, province and residential area (urban, rural), postal address and demographic information were recorded by standardized questioners.

**Step 2:** physical examination composed determination of weight, height, waist circumference and blood pressure.

**Step 3:** collecting 10-12 h fasting blood samples for fasting blood glucose cholesterol and triglyceride level.

## Results

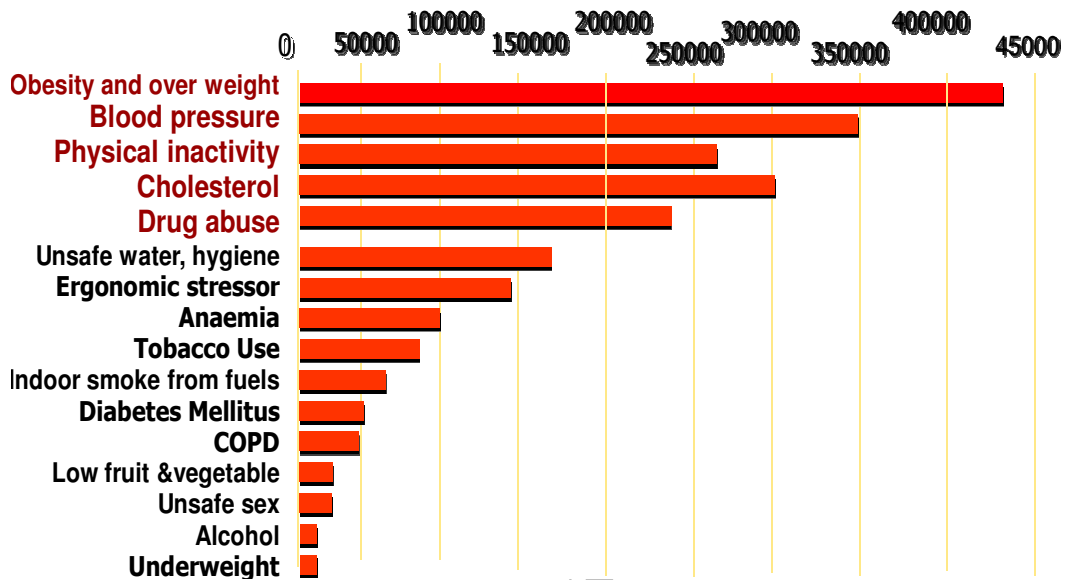
As presented in graphs and tables (Fig. 2-5, Table 1-2) the prevalence of total diabetes was 7.7 (95%CI= 7.5-7.9) in ages; 25-64. Prevalence of diabetes was higher in older age and urban dwellers. The BMI nation estimate was 24.8. The prevalence rates of obesity and over weight were 14.2 and 28.6 respectively in 15-64 yr. Obesity was more prevalent among women, and urban dwellers. 25.2 (95%CI= 24.4-28.9) of Iranian aged 25-64 were hypertensive. It is increased by age and was higher in women and in urban dwellers. In 15.1 of all ages total cholesterol were  $\geq 240$  MG/DL. Prevalence of current smokers was 14.2 and 32.5% of all ages did exercise at least 10 min in their free time.

**Table 1:** Prevalence of known and newly diagnosed diabetes by age groups in IRAN Survey -2004

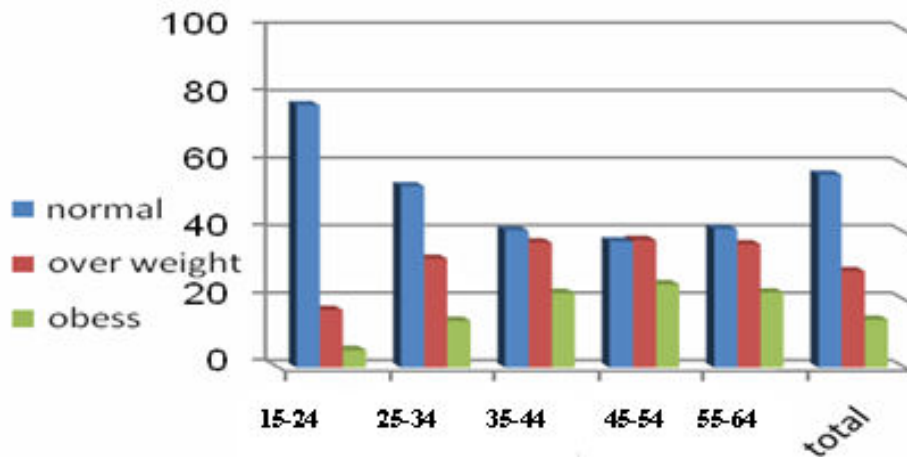
	Burden	Prevalence% (CI)
Age (yr)		
25-34	311983	3.0 (2.7-3.4)
35-44	519117	6.8 (6.3-7.3)
45-54	629209	12.9(12.3-13.5)
55-64	531580	16.8(16.1-17.4)
Men	933799	7.1 (6.7-7.4)
Women	1058090	8.3 (8.0-8.7)
Rural	442107	5.7 (5.3-6.0)
Urban	1549782	8.6 (8.3-8.9)
Total	1991889	7.7 (7.5-7.9)

**Table 2:** Prevalence of hypertension by age groups in IRAN National Survey -2004

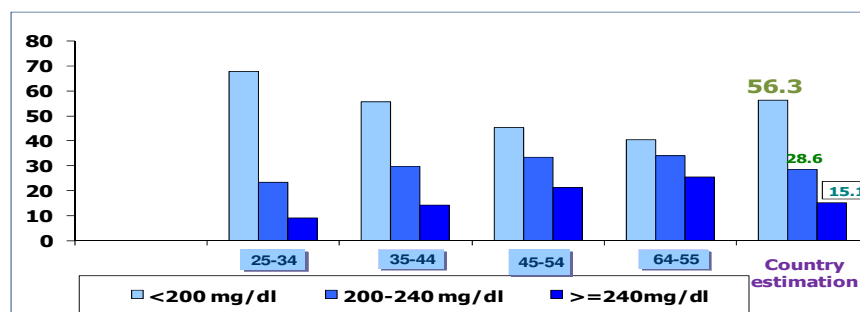
	Burden	Prevalence% (CI)
Age (yr)		
25-34	1282446	12.5 (11.95-13.01)
35-44	1681626	21.8 (21.14-22.45)
45-54	1889928	37.8 (37.05-38.58)
55-64	1748974	53.6 (52.83-54.4)
Men	3412521	25.5 (25.01-25.99)
Women	3190453	24.8 (24.33-25.25)
Rural	1952023	24.9 (24.29-25.41)
Urban	4650951	25.3 (24.87-25.7)
Total	6602974	25.2 (24.82-25.49)



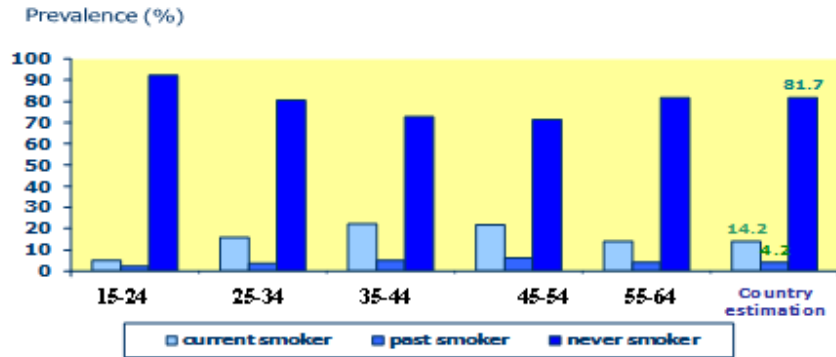
**Fig. 1:** Burden attributable to 16 leading risk factors in Iran, 2003



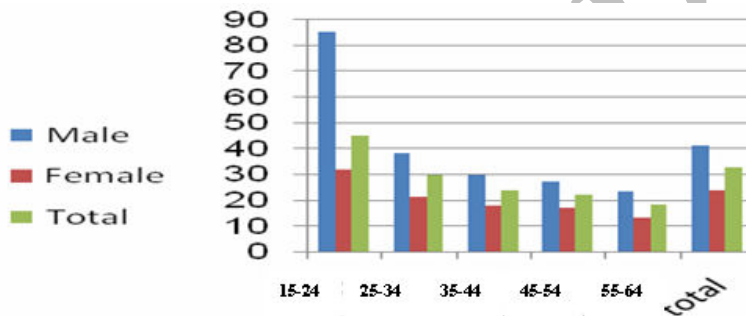
**Fig. 2:** Distribution of BMI classification by ages in IRAN National Survey-2004



**Fig. 3:** Distribution of total cholestrol by age group, IRAN National Survey 2004



**Fig 4:** Distribution of smoking behaviour by age group, IRAN National Survey 2004



**Fig. 5:** Relative distribution of those who exercise in their free time for at least 10 minutes IRAN National survey-2004

## References

1. WHO. World Health Report 2002: Reducing Risks, Promoting Healthy Life. Geneva: World Health Organization; 2002.
2. Ezzati M, Lopes AD, Vander Hoorn S, Murray CJL (2002). Selected major risk factors and global and regional burden of diseases. *Lancet*, 360(9343): 1347-60.
3. Ministry of Health's Burden of Disease Study, Iran-2003.
4. Boutayeb A, Boutayeb S (2005). The burdon of noncommunicable diseases in developing countries. *Int J Equity Health*, 4(1):2.
5. Esteghamati A, Gouya MM, Abbasi M et al. (2008). Prevalence of diabetes and impaired fasting glucose in the adult population of Iran: National Survey of Risk Factors for Non-Communicable Diseases of Iran. *Diabetes Care*, 31(1): 96-98.