Assessment of Non-Communicable Disease Risk Factors in Hormozgan Province

Mahmood Nekoei Moghadam[1], Elham Ahmadizadeh Fini[1], Narges Khanjani[2], Leyla Vali, [2]Emadaddin rafiezad[3], Mohammad Karim Dashtiyan[4], Akram Ahmadizadeh Fini[5*]

1- Associate, Kerman University of Medical Sciences (first author).
1- MS in Health Education Hormozgan University of Medical Sciences (first author).
2- Assistant, Kerman University of Medical Sciences.
3- B.c, Department of Non-communicable Diseases, Kerman University of Medical Sciences.
4- B.c of of Health, Hormozgan University of Medical Sciences.

5- MPH Master of Public Health, Hormozgan University of Medical Sciences (Corresponding Author).

Abstract: Introduction: Presently non-communicable disease count for more than 42% of the diseases worldwide and it is estimated that till 2020 they would be cause of 60% of the diseases and 73% of the mortality. In epidemiologic studies importance of non-communicable disease is mainly estimated by calculating the risk factors. **Methods:** In this study which is a part of non-communicable disease surveillance in Iran, 1000 people were enrolled and divided in 5age groups in urban and rural areas, and WHO standard questionnaire was completed for main risk factors of non-communicable diseases which were smoking, nutritional status, movement. Blood pressure and BMI were measured and calculated. **Results:** Mean BMI was 24.2, 17% had a blood pressure of higher than 140/90, 28.4 had minimal activity, 9.9% smoked daily, 78% consumed less than 5 servings fruit and vegetables per day and 25% had 1-3 risk factors. **Conclusion:**Regarding this fact that 25% of the studied population had 1-3 main risk factors of non-communicable diseases, and according to severe changes in lifestyle and increased unsafe behaviors especially in 15-24 year old and 64-55 year old group, necessary interventions are required to increase general knowledge on decreasing the risk factors and hence the risk of non-communicable diseases.

[Mahmood Nekoei Moghadam, Elham Ahmadizadeh Fini, Narges Khanjani, Leyla Vali, Emadaddin rafiezad, Mohammad Karim Dashtiyan, Akram Ahmadizadeh Fini. **Assessment of Non-Communicable Disease Risk Factors in Hormozgan Province.** *Life Sci J* 2013;10(12s):405-408] (ISSN:1097-8135). http://www.lifesciencesite.com. 69

Key words: non-communicable, risk factors, disease

Background:

Presently non-Communicable diseases are the cause of 43 percent of diseases worldwide and it is estimated that these might be the causes of 60 percent of diseases and 73 percent of deaths in 2020. Risk factor of epidemics in most developing countries is mostly in the category of non-communicable diseases(1). Epidemiologic studies have indicated that risk factors are causes of prevalent (2).

Currently increase of non-communicable diseases is a global crisisaccompanying with cardiovascular diseases, diabetes, cancer, cerebral infarcts and respiratory disease (4). In 2008, among 57 million deaths36 million people were died because of having non-communicable diseases.Of this 36 million, 14 million died because of obesity and being overweight and 3 million died because of insufficient activity (3).

Nowadays, due to the changes in life style and industrialization, risk factors of non-communicable diseases including smoking, overweight, obesity, hypertension, inactivity and malnutrition is increasing (13-16). It is predicted that in 2020, non-communicable diseases might become the causes of 7 of 10 deaths and in developing countries it might be the important cause of urbanization (6).The results of non-communicable disease surveillance in Iran indicated that the risk factors of non-communicable diseases have a different distribution in the country so that obesity and overweightness are the main risk factors of non-communicable diseases, following hypertension. (2) A report in 2004 of non-communicable disease surveyindicated that BMI of Iranians was 24.3 (24.3 in men and 25.9 in women Kg/M^2). The high risk individuals were reported as 26.4% in men and 29.9% in women.(5)

Regarding this fact that in Iran the cause of more than 1.3 of deaths was cardiovascular disease (17-19), and previous studies indicate a bad lifestyle in Iran (20), this study was done to investigate and assess the main risk factors of non-communicable diseases in Hormozgan province, Iran and their correlation with demographic variables to facilitate healthcare programming and policies in order to reduce non-communicable diseases and determine the burden of risk factors in Hormozgan province in Iran, and finally to design interventional programs for persons with high risks.

Methodology:

This study was a part of Hormozgan province's non-communicable disease surveillance program in 2011. Hormozgan province is located in south of Iran. The people's main dish is seafood, and people from all ethnicities live in this seaport. Urban and rural population were enrolled in this study. From different places of this province 500 clusters were selected for sampling and each cluster consisted of 20 people (according to the classification of the non-communicable disease surveillance project of Iranian ministry of health) and with a total of 1000, who were classified in 15-24, 25-34, 35-44, 45-54, 55-64 year old groups. From each age group 100 men and 100 women were selected from urban and rural areas. Data were collected according to a questionnaire affirmed by WHO, which consisted of several parts: one part was demographic data, other parts were about non-communicable disease risk factors including nutritional status, body activity and movement, blood pressure measurement in 3 steps with a 5 minute interval, smoking, anthropometric measurements including height and weight to calculate BMI which was filled out by educated health experts in rural and urban health centers. In nutritional section, amount of consumed servings of fruit and vegetables was recorded and type and amount of smoked cigarettes or waterpipes were recorded, along with the age they started to smoke. The amount of body activity was recorded as minimal and average on daily or weekly basis and each were recorded as hours and minutes of physical activities. The data were entered the SPSS software and analysed using the frequency distribution table.

According to the WHO questionnaire, non-communicable disease risk factors included daily smoking, consuming less than 5 servings of fruits and vegetables per day, physical activity of less than 600 minutes per week, over-weight or obesity, and blood pressure more than 140/90.

Results:

In this study, 1000 subjects were enrolled which were 500 women and the rest were male. The subjects were divided into 5 age groups and each age group had 100 subjects. In all age groups women's BMI was more than men. (table 1) Average BMI Of total subjects was 24.3, mean systolic pressure and diastolic pressure in men was more than in women in all age groups except for the 50-64 year old age group and 17.2% of the subjects were hypertensive (BP≥ 140/90) In all age groups men smoked more than women (except the age group of 55-64 years) and 9.9% of the subjects smoked on a daily basis. Only 13% of men and women in our study consumed fruits and vegetables more than 5 times a day on a daily basis (table 2), and 28.6% of studied population had physical activity of less than 600 minutes in week.

Table 1. Average BMI, Systolic and diastolic blood pressure

	Age group	15-24	25-34	35-44	45-54	55-60	Total
Mean BMI	Men	21.3-	**23.7**	**23.3**	**24**	23.4	23.4
	Women	32.5	**28.5**	**25.6**	**25**	25	25
Mean Systolic Blood Pressure	Men	120.6	**122**	**121**	**131**	100	100
	Women	109	**112**	**119**	**129**	136	136
Mean Diastolic Blood Pressure	Men	74	**77.5**	**78.4**	**83**	86.7	86.7
	Women	71.3	**75.5**	**79.5**	**83.3**	84.5	84.5

Table 2 smoking, fruits and vegetables consumption and physical activity

	Age group	15-24	25-34	35-44	45-54	55-60	Total
Daily smoking	Men	**2**	17	30	33	15.2	19.6
	Women	**0**	0	0	0	1	0.2
>5 servings Fruit and vegetables/day	Men	**13.3**	14.7	13.9	12.1	15	13.8
	Women	**10.3**	16.3	16.5	13.7	13	13.8
<600 mins physical activity/week	Men	**28**	30	27.9	30.9	29.3	32
	Women	**20**	30	24	28	35	23.2

Discussion:

This study was done in Hormozgan province to assess and evaluate the non-communicable disease risk factors in different age groups, and the results show that 25% of the studied population was at risk of non-communicable diseases. First assessed risk factor was BMI, and the average BMI of the studied population was 24.3, which was more in women in all age groups. In Moosazade et al.'s study in Mazandaran province, BMI of the studied population was more than the average BMI of the country, which increased with the age and was more in women than in men (2). In American studies, obesity

was 37% (7) and in Australia in 2001, obesity was 50% while this index was 55% in 2009(8,9).

According to WHO, in year 2005 160 million people aged more than 15 years were obese and it is estimated that by year 2015, approximately 230 million people would be suffering from obesity. (10) In this study, average BMI was less than 25 and the population was not in the range of obesity , but the women were more overweigh than men, and the BMI was less than the countries average BMI.

Other studied risk factor was daily smoking. Different studies show that 130 million people (47% men, and 12% women) smoke, of which 4.5% of them reside in low to average income countries (11).

In Iranian surveillance system, 21.7% men and 0.9% of women were smokers, lowest smoking was seen in Ilam (7.6%)m Yazd(8.6%), and GOlestan (9.1%) provinces and highest smoking was seen in Sistan&Baluchestan (20.3%), and Bushehr(21.2%) (5). Hormozgan had 9.9% of smokers who were less than the countries average.

Hypertension was another studied risk factor. A national study in Iran has reported average systolic blood pressure in men in 123 mmHg and 116mmHg in women; while the average diastolic pressure is reported to be 77mmHg in men and 77.3 mmHg in women. (5) A similar study in Sri Lanka in 2002 has reported high blood pressure in seen in 18.8% of men and 19.3% of women. (12). In present study, systolic and diastolic blood pressure in men (126/80) and women (121/78) is lower than countries average but 17.2% of studied subjects had a high blood pressure of more than 140/90 mmHg which was according to countries average. This increase in blood pressure was seen in subjects with increased age.

About 13% of studied subjects consumed more than 5 servings of fruits and vegetables per day. A study in Iran on consumption of vegetables and fruits showed that 12.1% of men and 13.9% of women consumed more than 5 servings of fruits and vegetables per day (5), this was reported to be 8.6% and 10.9% respectively, and that is somewhat lower than countries average and our study's reports.

Physical activity for more than 600 minutes per week was assumed to be a risk factor according to WHO's questionnaire. In our study, in all age groups (except for 55-64 year age group) physical activity was more in men than in women. In a national study, 35.2% of studied subjects had minimum physical activity (18), and 28.4% of subjects in our study had low physical activity. A similar study in Iraq shows that 56.7% had low physical activity. (21)

According to these findings, at least 25% of studied subjects had 3 main risk factors for non-communicable diseases. (i.e. were in the high risk groups) and only 4% were not at risk (had no risk factors). Moosazade et.al.showed that 2.9% of the studied subjects were low risk and 26.4% were high risk for non-communicable diseases. (2) Another study in Ardabil showed that high risk people for non-communicable disease were 36.7% (18). Disease surveillance in Iran has reported 26.4% of men and 29.9% of women are at high risk for non-communicable disease in 2007 (5).

In this study, factors causing non-communicable diseases especially cardio-vascular diseases. Regarding this fact that non-communicable diseases are one of the most important concerns in health in new era and the most important cause of mortality and morbidity in developed and developing countries, so by effective interventions, changing the people's lifestyle and promoting general knowledge on the risk factor definitions, many of the unsafe behaviors can be reversed and eliminated.

It is proposed that similar studies to be carried out annually to assess the trend of these risk factors and their reduction, so necessary policies can be made in provincial health system.

Corresponding Author:
Akram Ahmadizadeh Fini, MPH Master of Public Health, Hormozgan University of Medical Sciences

References

1-Beaglehole R, Bonita R, Horton R, et al. Priority actions for the non-communicable disease crisis. *Lancet* 2011; 377: 1438–47.

2-Moosazade M, Nsehi M, et al. Prevalence of Five Main Risk Factors of Non-Communicable Diseases in Mazandaran Province, Journal of Mazandaran University Of medical Scinses 2012,22(86):193-202

3- WHO. Global status report on non-communicable diseases 2010. Geneva: World Health Organization, 2011.

4-E mmamian MH, Alami, et al. Socioeconomic Inequality in Non-Communicable Disease Risk Factors in Shahroud. Iran, Iranian Journal of Epidemiology 2011;7(3):44-51.

5-Aghajani H, et al, Reported risk factors of Non-communicable diseases in Iran,2005

6-Somira humaira, Burden of non-communicable disease: Global overview, Diabetes & Metabolic Syndrome: Clinical Research & Reviews, Volume 4, Issue 1, 2010, Pages 41–4.

7-Maddan S. Walker T, Miller. Does size really matter? A reexamination of Sheldon's somatotypes and criminal behavior. Soc Sci,2008;45:330-44.

8-Butler T, Milner L. The 2001 New South Wales Inmate Health Survey. Sydney: NSW Correction Health Service,1997.

9-Inding D, Topp L, Ross B. et al. 2009 NSW inmate health surrvery: Key finding report. Sydney: Justice Health. 2010.
10 -James PT. Obesity: the Worldwide epidemic. Clin Dermatol 2004;22(4):276-280.
11- World Health Organization. Tobacco free inititive, Noncommunicable disease and mental health.GENEVA:who;2004
12- Wijewardene K, Mohideen MR, Mendis S, Fernando DS, Kulathilaka T, Uluwitta P. Prevalence of hypertension, diabetes and obesity: baseline findings of a population based survey in four provinces in Sri Lanka. Ceylon Med J 2010;50(2)62-70
13-Haenle M, Brockmann S, Kron M, Bertling U, Mason R, Steinbach G, et al. Overweight, physical activity, tobacco and alcohol consumption in a cross-sectional random sample of German adults. BMC Public Health 2006; 18(6): 233-244
14-Guilbert JJ. The world health report 2002-reducing risks, promoting healthy life. Education for Health-Abingdon-Carfax Publishing Limited 2003; 16(2): 230-230.
15-Ezzati M, Lopez AD, Vander Hoorn S, Murray CJL. Selected major risk factors and global and regional burden of disease. Lancet 2002; 360(9343): 1347-136.
16-Unstall-Pedoe H. Preventing Chronic Diseases: A Vital Investment: WHO Global Report, Geneva: World Health Organization.Int J Epidemiol 2006; 35(4): 1107.(8).
17-Moosazadeh M. Report of surveillance system fifth of non-communicable Disease in Mazandaran province in 2009 years. Roojin Mehr Publication 2011; 1-16 (Persian).
18-Asgari F, Mirzazadeh A, Miri H. Non-Communicable Diseases Risk Factors Surveillance Data Book For 2007, Ministry of Health and Medical Education, 2010.
19-Khosravi A, Najafi F, Rahbar M and AtefiA. Health profile indicators in the Islamic Republic of Iran. Tehran, Iran: Ministry of Health and Medical Education. 2009; 134-137.
20-Prentice AM. The emerging epidemic of obesity in developing countries. Int J Epidemiol 2006; 35(1): 93-99.
21-Ministry of Health, Directorate of Public Health and Primary Health Care. Chronic Noncommunicable Diseases Risk Factor Survey in Iraq. 2006; Available from: http://www.fineprint.com.

11/12/2013