

CARDIOVASCULAR RISK FACTORS MONITORING & MANAGEMENT IN THE REPUBLIC OF MOLDOVA

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Abstract: The aim of this article is to bring forward and realize the dimension of the cardiovascular risk problem and its impact in the Republic of Moldova. Most cardiovascular disease could be prevented by reducing the four risk factors: smoking, unhealthy diet, physical inactivity, alcohol abuse - that is the group of modifiable behavioral factors. Cardiovascular diseases are widely regarded as one of the most important public health issues of the 21st Century. This is determined by imposing the presence of the phenomenon worldwide, as measured by increased damage to health status. According to WHO from 57 million deaths in 2008, 36 millions of them, representing 63% were caused by non-communicable diseases. It was found that the share of major non-communicable diseases lies in four diseases: cardiovascular diseases (48%), cancer (21%), chronic respiratory disease (11.7%) and diabetes (3.6%). The main risk factors for cardiovascular disease are smoking, high blood pressure and high blood glucose and cholesterol. There are the factors in direct relation to individual lifestyle, eating habits and physical activity levels. Other cardiovascular risk factors include: obesity, diabetes, excessive alcohol consumption and psychosocial stress. Despite that there is incomplete statistical evidence and monitoring of modifiable cardiovascular risk factors in the Republic of Moldova. This situation complicates decision making for cardiovascular prevention interventions at all levels and also causes a stately reserve to optimize cardiovascular prevention by reducing modifiable risk factors in Republic of Moldova.

1. Introduction

Cardiovascular diseases are the number one cause of death at global level. It is estimated that in 2008, 30% of the total of global deaths is due to cardiovascular diseases, representing 17.3 million of deaths. Out of these, it has been estimated that 7.3 million were due to coronary heart disease and 6.2 million were due to stroke. The low- and middle-income countries are disproportionately affected: over 80% of cardiovascular diseases deaths take place in low- and middle-income countries and occur almost equally in men and women. By 2030, almost 23.6 million of people will die from cardiovascular diseases, mainly from coronary heart diseases and strokes. These are projected to remain the single leading cause of death.

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The main risk factors for cardiovascular disease are smoking, high blood pressure and high blood glucose and cholesterol. There are the factors in direct relation to individual lifestyle, eating habits and physical activity levels. Other cardiovascular risk factors include: obesity, diabetes, excessive alcohol consumption and psychosocial stress [3].

For the non-communicable diseases the most important risk factors are arterial hypertension, hypercholesterolemia, inadequate intake of fruits and

legumes, overweight or obesity, physical inactivity and the noxious effect of smoking. [10].

Research shows that the people who have an active life from the physical point of view, who do not smoke, who consume alcohol in moderate quantities, who eat lots of fruits and vegetables have a death risk with 25% lower than those with unhealthy habits linked to those attitudes. An overweight person with a medium height has a growing death risk with approximately 30 % for each 15 kg surplus[4].

According to the possible intervention risk factors for cardiovascular diseases fall into two main categories that: modifiable and non-modifiable. Modifiable risk factors include three types: biological, behavioral and general. So, the first type includes modifiable factors that: high blood pressure, high blood glucose, high blood cholesterol, obesity and overweight. The risk factors linked to behavior are: tobacco use, unhealthy diet, physical inactivity and harmful use of alcohol. The third type general modifiable risk factors includes: education, income, living and occupational conditions (Tab.1).

Table 1. Cardiovascular Risk Factors Classification

MODIFIABLE		NonMODIFIABLE	
BIOLOGICAL	BEHAVIORAL	GENERAL	
High blood pressure	Tobacco use	Education level	Age
High blood glucose	Unhealthy diet	Income	Sex
High blood cholesterol	Physical inactivity	Living conditions	Genetics
Overweight/obesity	Alcohol abuse	Occupational conditions	Ethnicity

The Source: ESC. Clinical Practice Guidelines. CVD Prevention in clinical practice. European Journal of Cardiovascular Prevention and Rehabilitation, September 2007,14, (supp 2):E11-E40. Available at:

<http://www.escardio.org/guidelines-surveys/esc-guidelines/Pages/cvd-prevention.aspx> Accessed April 9, 2012.

In this context is important to note that the Action Plan for the Global Strategy for the Prevention and Control of Non-communicable Diseases WHO (2008-2013) considers the modifiable factors as a main target for cardiovascular risk reduction intervention[13].

2. The purpose

The aim of this paper is to estimate the burden of modifiable Cardiovascular risk factors in Republic of Moldova, to argue the need to promote better reducing interventions and an ample cardiovascular risk monitoring.

3. Methods

To achieve its purpose the author used descriptive research method (synthetic analysis) based on statistical data of the World Health Organization and National Center for Health Management in Moldova .

4. Results

Cardiovascular diseases have become of primary importance because of the spread and increase of the negative impact on working capacity of the population in economically-developed countries and in Republic of Moldova as well. For a population of about 3.5 million people as does the Republic of Moldova at present [5], is downright alarming that over 400 000 people are suffering from diseases of the circulatory system. In addition the prevalence of cardiovascular diseases patients increase every year (Table 2.).

Table 2. Incidence and Prevalence of Cardiovascular Diseases in the Republic of Moldova per 100,000 period 2003-2011

	2003	2004	2005	2006	2007	2008	2009	2010	2011
Incidence	142,6	184,3	242,9	212,5	197,2	169,2	167,8	154,1	169,2
Prevalence		779,5	921,4	986,7	1100,9	1161,1	1233,4	1249,2	1325,4

Source: Statistical report of National Center of Health Management, [http://www.ms.md/public/info/analiza/statistics/2011/anstat2011ms/rom/download 26/04/2013](http://www.ms.md/public/info/analiza/statistics/2011/anstat2011ms/rom/download%2026/04/2013)

In 2008 the Republic of Moldova's population most deaths have been caused by diseases of the circulatory system - 55.95% of deaths, followed by malignant tumors - 13.21% deaths. Most deaths of working age people in Moldova have been caused by diseases of the circulatory system, which in 2009 recorded value of 136.2 and in 2010 year – 147.5 deaths per 100,000 population, being increased to previous years. However, according to the statistics 2011, it is noted that deaths caused by diseases of the circulatory system decreased to 121.0 deaths per 100,000 population [7,8].

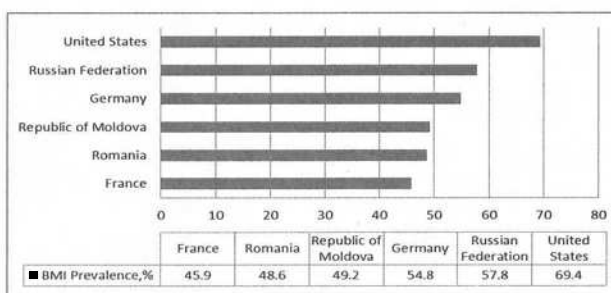
Cardiovascular diseases rank second in general morbidity structure of the adult population, being first for the population aged 60+ years. The dynamics of

cardiovascular diseases of the population of the Republic of Moldova has a tendency to rejuvenate affection. The rate of primary disability increased from 299.0 caused by circulatory diseases in 21%(2003 year) to 372.7 caused by circulatory diseases in 20.3%(2010 year), and 356.5 - caused by circulatory diseases in 20.9% (2011) per 100,000 population in the Republic of Moldova [7,8].

According to the findings mentioned above, the monitoring of cardiovascular risk factors could provide an extra bit of confidence to improve cardiovascular health. In this context the situation in Republic of Moldova is sufficiently alarming. According to the WHO statistics, only statistical data on three factors are offered on all cardiovascular modifiable risk factors for Republic of Moldova, which constitute 37.5% of the total. For these three modifiable factors of cardiovascular risk (two are behavioral type and other is biological one) processed by WHO (tobacco use, alcohol abuse, overweight and obesity) the situation comparing to other world countries does not seem encouraging at all.

1. Overweight and obesity: Obesity is a high prevalence phenomenon in high income countries and in low-income countries as well. According to WHO, 42% of world population is obese or suffers from excess weight. The study "Analysis of the health of the population of Republic of Moldova in terms of statistical indicators for the period 2005-2009" estimates that the share of obese people aged 15 + years is increasing from 0.39% (2005 year) to 0.45 % (2009 year) in Republic of Moldova. This study also concluded that statistical evidence is incomplete on overweight and obesity is not subject to extensive monitoring in Republic of Moldova [5].

Compared with other countries Republic of Moldova does not hold first place in the world to the problem of overweight and obesity (Fig. 1), but given the trends of increasing the proportion of people with overweight and obesity, it is clear that the problem is sufficiently stringent in Republic of Moldova as well.

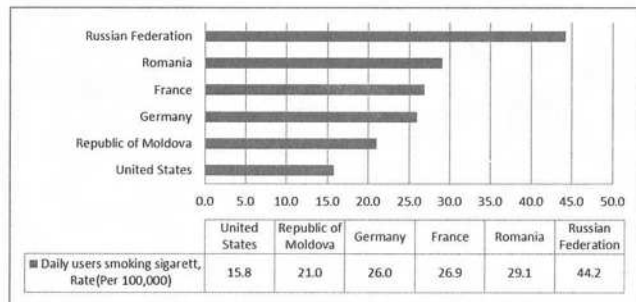


Source: Global status report on non-communicable diseases 2010 [http://www.who.int/nmh/publications/ncd_report2010/en/download 03/05/2012](http://www.who.int/nmh/publications/ncd_report2010/en/download%2003/05/2012)

Fig.1. Age-standardized prevalence estimated Overweight (BMI ≥ 25 kg/m²), Both sexes, Aged 15+, 2010

2. Tobacco use: It is well known that active smoking increases the risk for heart disease and cerebrovascular disease in 100% cases [11]. In most developed countries during the years 1981-1991 tobacco use has declined considerably. However in the countries with low and

medium income the number of smokers increase by about 3.4% in a year, being even very dramatic for some of them. According to WHO [11] in Moldova for tobacco use prevalence compared with other countries it is estimated a situation that is actual for most developing countries with low economic income described above (Fig. 2).



Source: Global status report on non-communicable diseases 2010 http://www.who.int/nmh/publications/ncd_report2010/en/download 03/05/2012

Fig.2. Age-standardized prevalence estimates for smoking cigarette: Daily users - Males, Aged 15+, 2008

Actual primary medical care management in Republic of Moldova shows the primary role of family doctor in the insurance of cardiovascular risk prevention.

In Republic of Moldova official statistics about cardiovascular risk factors observation are offered since the beginning of 2009. Prophylactic examinations include investigations in: Glucose, Serum cholesterol, Blood pressure, Electrocardiogram.

Along with this statistical data is limited to establish a percentage of persons examined to persons that are in need of examination. Complex monitoring, that includes not only quantitative estimation, but also qualitative parameters of the phenomenon, could be a prompt action to prevent cardiovascular diseases.

In general lines it was noted as a positive trend for examined persons for cardiovascular prevention in municipalities and in regions of Republic of Moldova (Fig. 3-5).

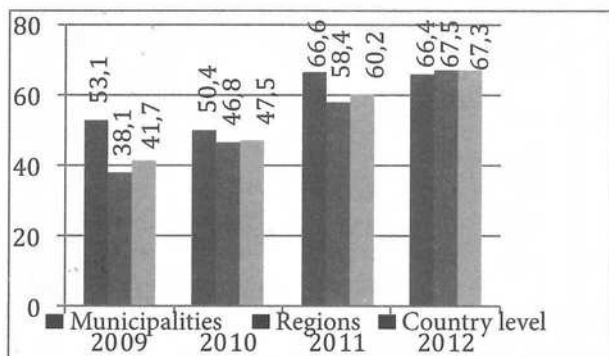


Fig. 3. Percentage of examined persons with Serum cholesterol within prophylactic examination in Republic of Moldova from 2009-2012, %

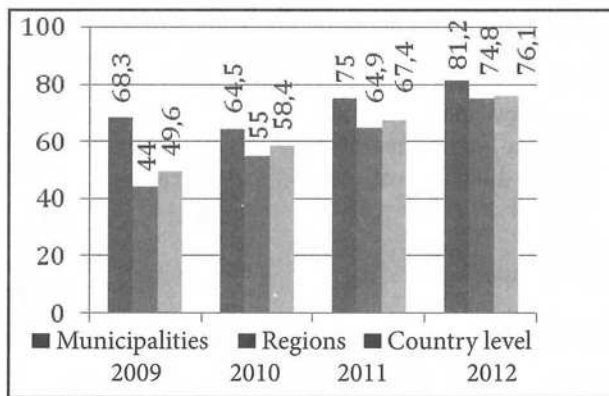


Fig.4. Percentage of examined persons at Blood Glucose within prophylactic examination in Republic of Moldova from 2009-2012, %

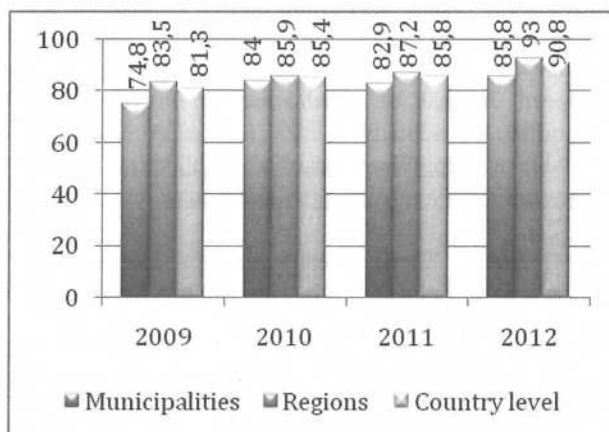


Fig 5. Percentage of persons that got their blood pressure measured prophylactic examination in Republic of Moldova from 2009-2012, %

5. Discussion

As World Health Organization estimates most cardiovascular disease could be prevented by reducing the four risk factors: smoking, unhealthy diet, physical inactivity, alcohol abuse - that represent group of modifiable behavioral factors. All level of interventions are important for cardiovascular health promotion, reducing high blood pressure, obesity, smoking and cholesterol will decrease by more than half the incidence of cardiovascular disease [12,13]. Therefore, determining the level of blood pressure, glucose and blood cholesterol, tobacco use and sedentary lifestyle must be an integral part of any medical examination. However there is incomplete statistical evidence and monitoring of modifiable cardiovascular risk factors in the Republic of Moldova. This situation complicates decision making for cardiovascular prevention interventions at all levels and also causes a stately reserve to optimize cardiovascular prevention by reducing modifiable risk factors.

6. Conclusions:

1. Cardiovascular health represents an important public health issue in the Republic of Moldova and in the world as well.

2. Complete statistical evidence and complex monitoring of cardiovascular risk factors will help to

improve cardiovascular prevention management in the Republic of Moldova.

3. Cardiovascular disease can be prevented essential by making appropriate and opportune cardiovascular prevention at all interventions levels, thus following the main directions of cardiovascular health promotion worldwide.

7. References

[1] Allender S., et al. European cardiovascular disease statistics. British Heart Promotion Research Group, Department of Public Health, University of Oxford. Edition 2008. p. 1-113.

[2] American Heart Association. *International Cardiovascular Disease Statistics*. Available at <http://www.americanheart.org/downloadable/heart/1236204012112INTL.pdf>.

[3] European Society of Cardiology (ESC). Clinical Practice Guidelines. CVD Prevention in clinical practice. European Journal of Cardiovascular Prevention and Rehabilitation, September 2007, 14, (supp 2):E11-E40. Available at: <http://www.escardio.org/guidelines-surveys/esc-guidelines/Pages/cvd-prevention.aspx> Accessed April 9, 2012.

[4] Franco Sassi, Obesity and the Economics of Prevention, FIT NOT FAT, ISBN 978-92-64-06367-9 (print), ISBN 978-92-64-08486-5 (PDF)

[5] Politicile de combatere a obezității. Monitor Politici de sănătate. Institutul de Sănătate Științifică și Socială. Buletin electronic. Nr.1, 2011.

[6] Lloyd-Jones D, Adams R, Carnethon M, et al. Heart disease and stroke statistics—2009 update:

a report from the American Heart Association Statistics Committee and Stroke Statistics Subcommittee. *Circulation*. 2009;119:e21-e181.

[7] Raportul anual al Centrului National de Management și Sanatate, Anuarul statistic al sistemului de sănătate din Moldova anul 2010. <http://www.ms.md/public/info/analiza/statistics/20100/erftff/> Accessed April 21, 2012. (citată 21 aprilie, 2012)

[8] Raportul anual al Centrului National de Management și Sanatate, Anuarul statistic al sistemului de sănătate din Moldova anul 2011 <http://www.ms.md/public/info/analiza/statistics/2011/anstat2011ms/> Accessed April 26, 2013. (citată 26 aprilie 2013)

[9] Tintiuc D. Sănătate Publică și Management. Chișinău, 2007. p. 762-771.

[10] World Health Organization, Global strategy on diet, physical activity and health, 2004, ISBN 92-4-159222-2

[11] World Health Organization (WHO). *Global status report on noncommunicable diseases 2010*. World Health Organization (2011). Available at: http://www.who.int/nmh/publications/ncd_report2010/en/ downloaded 03/05/2012 p. 1-31.

[12] World Health Organization (WHO). *Global Atlas on cardiovascular disease prevention and control*. World Health Organization (2011). Available at: http://whqlibdoc.who.int/publications/2011/9789241564373_eng.pdf downloaded 03/20/2012

[13] World Health Organization (WHO). 2008-2013 Action Plan for the Global Strategy for the Prevention and Control of the Noncommunicable diseases. Geneva, WHO 2008. Available at: <http://www.who.int/nmh/publications/9789241597418/en/> downloaded 03/20/2012