

ASPECTS OF PREMATURE DEATH CAUSED BY MAJOR CARDIOVASCULAR DISEASES AMONG THE ADULTS OF THE REPUBLIC OF MOLDOVA (2008-2012)

ELENA RAEVSCHI¹¹„Nicolae Testemițanu” State University of Medicine and Pharmacy of the Republic of Moldova

Keywords: cardiovascular disease, premature death, YPLL, cardiovascular prevention

Abstract: Statistical indicator YPLL (Years Potential Life Lost), proposed in the Global Burden of Disease 1990 study to estimate the burden of disease in a population, moves target from classical focus on the occurrence of deaths to focus on the losses caused by these deaths, assessing premature mortality. The purpose of research is to estimate the impact of premature death caused by major cardiovascular diseases on health of the adults of the Republic of Moldova. This research is a population descriptive study. The study estimated that the population of working age (up to 62 years old) in Moldova accounts for 70% of the major cardiovascular diseases of the average YPLL (2008-2012). Systematic assessment of potential indicators (PYLL, DALY) provides added safety for prioritizing interventions and evidence-based decision-making regarding the management of cardiovascular prevention in the Republic of Moldova.

Cuvinte cheie: maladii cardiovasculare, deces prematur, YPLL prevenție cardiovasculară

Rezumat: Indicatorul statistic YPLL (Years Potential Life Lost) propus în cadrul studiului Global Burden of Disease 1990 pentru estimarea poverii bolii într-o populație, deplasează accentul de pe focusarea clasică asupra apariției deceselor spre centrarea pe pierderi produse de aceste decese, prin evaluarea mortalității premature. Scopul cercetării este de a estima prejudiciul decesului prematur prin maladii cardiovasculare de contribuție majoră asupra sănătății populației Republicii Moldova. Cercetarea este un studiu descriptiv integral. Studiul a estimat că populației în vârstă aptă de muncă din Republica Moldova îi revine o pondere de 70% din numărul mediu YPLL pentru maladiile cardiovasculare majore pentru perioada 2008-2012. Evaluarea sistematică a indicatorilor statistici potențiali (PYLL, DALY) va asigura un plus de siguranță pentru prioritizarea intervențiilor și efectuarea deciziilor bazate pe dovezi privind managementul prevenției cardiovasculare în Republica Moldova.

INTRODUCTION

Cardiovascular diseases are widely recognized as the leading killer of XXI Century, even exceeding all cancers together.(1)

The notion of cardiovascular disease of major contribution starts from idea of the prevailing part in the structure of mortality caused by the maladies of the circulatory, being assigned to the data of WHO: ischemic heart diseases (42%), cerebrovascular diseases (36%) and hypertensive diseases (7%).(2) In the Republic of Moldova, major contribution cardiovascular diseases constitute a part of 96.6 %, compared to 85% estimated on the global level.

In Republic of Moldova health evaluation of the population is traditionally done by analyzing brute and specific mortality rates by cause of death by age and sex, based on the incidence and morbidity prevalence and disability. Unlike the traditional analyzing, Statistical indicator YPLL (Years Potential Life Lost), proposed in the Global Burden of Disease 1990 study to estimate the burden of disease in a population, moves target from classical focus on the occurrence of deaths to focus on the losses caused by these deaths, assessing premature mortality.(3)

PURPOSE

The purpose of the research is to estimate the impact of premature death caused by major contribution cardiovascular diseases on health of the adults of the Republic of Moldova in order to optimize management of cardiovascular prevention.

METHODS

Research designed to meet requirements for a descriptive population study. The study covered three classic directions of descriptive study investigations: 1 - by time, 2 - by place and 3 - by personal characteristics. Data analysis by time included the period 2008-2012, depending on place - the Republic of Moldova, rural and urban and depending on the person - by sex and age. Method of data collection involved the use of vital statistics data recorded by the National Centre for Health Management of the Republic of Moldova.(4)

YPLL rate was calculated using the formula:

$$\frac{\sum (X - \text{age at death}) \times \text{number of deaths at each age}}{\text{Number of people ages 70 and younger}} \times 100,000$$

RESULTS

In the Republic of Moldova major contribution cardiovascular diseases constitute a part of 96.6 %, distributed as follows: ischemic heart disease - 65.3%, cerebrovascular disease - 26.7% and hypertensive disease - 4.6% of cases.

Level of major cardiovascular disease mortality showed a negative trend for the period 2008-2012 (from 635.4 to 619.3 cases per 100,000 population). Specific mortality rates by cause have proved the same decreasing trends: ischemic disease - from 425.3 to 420.2 (illustrative indices - 98.8%) and cerebrovascular disease - from 189.9 to 172.07 (illustrative

¹Corresponding author: Elena Raevschi, 22/2 Bd. Dacia, Chișinău-2043, Republica Moldova, E-mail: Elena.raevschi@usmf.md, Tel: +37369 233157
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indices - 90.6%), while being growing for hypertensive disease deaths - from 20.2 to 29.36 per 100 thousand population (illustrative indices - 145.5%).

For the reference period of time the major contribution cardiovascular disease mortality in rural areas of the Republic of Moldova was established to be more impressive than the urban, while retaining a slight decreasing trend for both cases: from 764.09 to 744.65 at 100, 000 population in rural areas and from 454.01 to 451.06 per 100 thousand population in urban areas. The major contribution cardiovascular diseases proportion of deaths by residence is 97% for rural and 96.6% urban area, keeping the same logic as the country distribution.

Major contribution cardiovascular disease mortality rate of the adult population of the Republic of Moldova by gender for the study period was found to be stable higher for the female population, with a slight decrease in frequency, both for men (from 584.1 to 554.1 cases per 100, 000) and female (to 682.8 to 660.3 cases per 100, 000) population.

Major contribution cardiovascular diseases mortality rate of the population by working age (up to 62 years) of the adult population of the Republic of Moldova showed a trend of a slight decrease for all Five-Year age respecting frequencies increased for the ischemic heart disease deaths, followed by the cerebrovascular disease, and hypertensive disease.

Ischemic heart disease mortality rate for age groups 16-19, 20-24 years has a tendency to increase from 0.6 to 1.5 and from 1.4 to 1.8 cases per 100, 000, respectively and demonstrates the presence of frequency peaks especially for 2009-2010 period of time for the age groups 25-29, 35-39, and 60-61 years. This demonstrates the fragility and instability of the general trend of a slight decrease in the level of ischemic heart disease mortality.

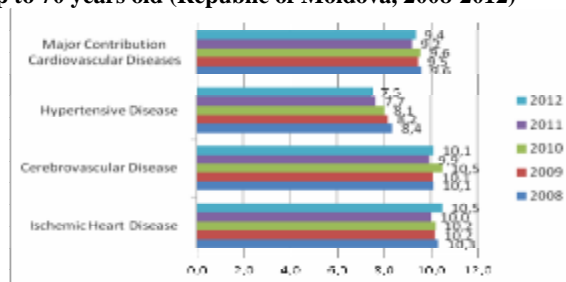
Assessment of disease burden in terms of losses caused by deaths showed that for the period 2008-2012 was estimated to increase from 10.3 to 10.5 average number YPLL to a death caused by ischemic heart disease (figure no. 1). The achievement of the general trend of decreasing levels of the ischemic heart disease mortality in the working population occurred due to advanced age groups.

Dynamics of the cerebrovascular disease deaths rate proved to be more stable to decreasing tendency, however slight showing frequency peaks mainly for the period 2009-10 for the age groups 30-34, 35-39 and 60-61 years. Achieving the trend of decreasing frequencies of the cerebrovascular disease deaths in the working population for 2008-2012 was mainly due to advanced age groups, showing the average number of YPLL to a death: 10.1; 10.1; 10.5; 9.9; 10.1 respectively for the years of investigation (figure no. 1).

Increasing the level of hypertensive disease deaths in working age occurred due to the age groups over 60 years (from 17.5 to 32.1 per 100 thousand population) for the period 2008-2012. Average decrease YPLL from 8.4 to 7.5 years for one death occurred due to hypertensive disease (2008-2012 y.) demonstrates the same trend that achieving growth for 2008-2012 was mainly on account of advanced age groups (figure no. 1).

The study estimated that the population of working age (up to 62 years old) in Moldova lays 70% of the major contribution cardiovascular diseases average YPLL (y.2008-2012) as follows: ischemic heart disease - 74.5%, cerebrovascular diseases - 74.4%, hypertensive disease - 61%). Causes of death calculated using YPLL differ from those obtained by other methods reflecting the causes of death that affects the economically active youth population which determines the greatest economic losses.

Figure no. 1. The average number of YPLL to a death by major contribution cardiovascular diseases of the population up to 70 years old (Republic of Moldova, 2008-2012)



YPLL rates by major contribution cardiovascular diseases, which refers to the major concept of avoidable mortality as an indicator of quality of care (avoidable deaths) proved to be decreasing slightly (from 6.58 to 6.13 per 1,000 population up to 70 years). This trend is valid according to the clinical form, namely: ischemic heart disease (12 to 11.7), cerebrovascular diseases (from 7.2 to 6.2) and hypertensive disease (from 0.53 to 0.48 per 1,000 population up to 70 years) (figure no. 2).

Figure no. 2. The YPLL rate by major contribution cardiovascular diseases among adults of the Republic of Moldova, year 2008-2012 (1,000 population up to 70 years)

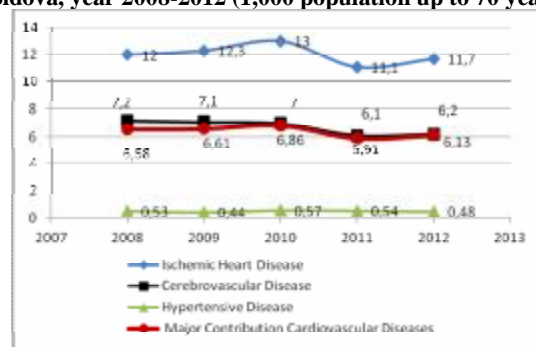


Table no. 1. The YPLL rate by ischemic heart disease among adults of the Republic of Moldova, year 2008-2012 (1,000 population up to 70 years)

Age, years	2008	2009	2010	2011	2012
16-19	0.32	0.17	0.53	0.19	0.78
20-24	0.67	1.06	0.93	0.54	0.84
25-29	1.43	2.08	2.42	1.17	1.39
30-34	5.23	3.84	4.16	2.29	3.27
35-39	7.88	8.92	9.80	7.88	6.52
40-44	14.59	15.47	15.78	12.43	13.60
45-49	21.34	20.52	21.76	16.62	19.34
50-54	32.01	31.76	32.13	28.25	28.46
55-59	45.10	42.41	40.46	35.48	38.24
60-64	43.51	46.82	54.54	49.51	46.13
65-69	28.74	30.99	31.90	26.05	24.01
Adults up to 70 years	12.0	12.3	13.0	11.1	11.7

YPLL is an indicator that measures the premature mortality and reflects the trends for the younger age groups by taking into account not only the causes of death, as well as the age when death occurs. Thus, the YPLL for 2012 of 11.7 per 1,000 population up to 70 years was estimated to be the major contribution of age groups: 40-44 years (13.60 per 1,000), 45-49 years (19.34 per 1,000) and 55 - 59 years (38.24 per 1,000 population) being all in the category of working age population (table no. 1).

DISCUSSIONS

The obtained results show that statistical mortality data presented in the light of what is lost (YPLL) and not what is produced (traditional crude rate and specific) allows to set priorities for intervention to health services, more certain identification of disadvantaged areas and population groups, most optimal setting criteria for allocating health resources and setting priorities for health services research.

Premature deaths could be completely avoided if the primary and secondary prevention measures would be applied correctly and on time. It is generally given increased importance of health care itself rather than the preventive aspect, losing the fact that we could substantially reduce premature mortality by effective prevention.

CONCLUSIONS

1. Providing systematic monitoring and evaluation of potential indicators (YPLL) in Moldova will contribute to prioritize interventions at community and individual level.
2. Using YPLL for systematic calculation of complex statistical indices, that take into account the phenomenon of premature mortality as well as non-fatal consequences of the causes of disease (disability, handicap) (DALY), will contribute to improve the quality assessment of the population health and of the effectiveness health System in Republic of Moldova.
3. Systematic assessment of potential indicators (PYLL, DALY) will better provide evidence-based decision-making regarding the management of cardiovascular prevention in Republic of Moldova.

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