

Polish Forum for Prevention Guidelines on Psychosocial Cardiovascular Disease Risk Factors

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Introduction

The observation that higher education is related to lower cardiovascular disease (CVD) mortality and to higher life expectancy has been confirmed in many countries including Poland. The explanation seems to be simple. The common opinion is that people with higher education earn more and have a higher standard of living. They also have broader knowledge on life hazards and better access to medical services. A more careful review of the findings from research studies indicates that these associations are more complicated. First, the relation between education and mortality was found also in the second half of the 20th century in Poland and in other Eastern European countries where university education was not related to high income. Then, differences between mortality were found also within the group with university education. In the Swedish egalitarian population university graduates who had a doctorate degree had lower mortality compared to those without a doctorate degree. Sir Michael Marmot, one of the top experts in the area of psychosocial risk factors and health inequalities, cites the example that Academy Award

(Oscar) winners lived longer compared with those who were only nominated for an award [1]. In the Whitehall Study it was found that only 25% of the difference in mortality between the social classes could be explained by differences in education. This indicates that not so much education but rather socio-economic status (SES) influences health. It was also confirmed that the relation between SES and life expectancy is stronger the greater are the social inequalities in the general population [2].

There are several mechanisms by which social relations may contribute to better health. First, life partners can positively influence our lifestyle and help to eliminate known risk factors. Second, they can provide better care, but it may also be that good social support is related to better mental state, which in turn is related to better physical health. Conversely, lack of social support (social isolation) may contribute to worse health.

Working environment plays an important role in the lives of most people. The opinion that coronary heart disease is related to stressful work is quite common but usually it is understood in the way that hazardous stress

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is related to high ranking posts. Not so long ago, in Poland myocardial infarction (MI) was called the 'managers' disease'. The finding that coronary heart disease (CHD) is more frequent in patients with low education might be surprising but appears more understandable if chronic sources of stress at work are better understood. There are two main concepts of stress at work. The first is the 'job strain' model [3, 4]. High demands at work (having to work quickly and hard) combined with low decision latitude (not being able to make own decisions, plan and organize own activities or learn new skills) is an important source of stress which is hazardous for health. The other model, that of Siegrist [5, 6], is based on effort-reward imbalance. High work load in combination with low reward (income, prestige, position in society and respect from other people, and job security) increases CVD risk.

Chronic psychosocial stress is a risk factor for depression. A relation between depression and CHD has been found in many studies. The problem is still debated as it is obvious that patients with a diagnosis of heart disease get depressed. However, depression increased the risk of CHD in prospective studies with a long duration of follow-up. The strength of the relation and a dose effect (severe depression is related to higher risk than mild depression) strongly support the hypothesis of a casual relationship. The other well defined and treatable psychiatric disorder which is related to CVD risk is anxiety. A relation between anxiety and CHD was found in several cohort studies including a Polish one (POL-MONICA Kraków). The evidence is weaker than for depression and the hypothesis that anxiety might be a result of preclinical coronary heart disease rather than its cause is still debated. Anxiety seems, however, to be strongly related to higher risk of sudden death.

In the 1980s a lot of attention was paid to type A behaviour. Type A behaviour is a type of personality characterized by high determination to achieve goals, competitive behaviour, excessive job involvement, impatience, hostility, vigorous speech stylistics and psychomotor activity. In the American Western Collaborative Group Study and Framingham Study type A behaviour was strongly associated with higher risk of CHD but in the later studies the relation was not confirmed. Most experts agree that the supporting evidence for type A behaviour as a CVD risk factor is weak, as is the case for its components such as hostility.

There is no doubt that our knowledge on psychosocial determinants of CVD is not complete and there are certain limitations in the interpretation of the findings of research studies. One important limitation is that most of the evidence comes from observational projects which were not specially designed to study the relationship between psychosocial traits and health. Some factors were not studied extensively (anger, aggression, cynicism, domination, exhaustion, etc.) so the evidence is scarce. For

no single factor was a relation with risk of CVD found in all studies. However, taking into account the variety of study designs and methodological difficulties in the measurement of psychosocial risk factors it is striking that for some factors (depression, social support, working environment) the results of the good quality prospective studies agree to a large extent [7]. It was proved that intervention targeting psychosocial risk factors can result in lowering mortality and the incidence of a second MI in patients after MI [8, 9]. However, surprisingly, large-scale experimental studies did not confirm cardiovascular benefits from treatment of depression in coronary heart disease patients. No experiments were done in a healthy population but a so-called 'natural experiment' in Eastern European countries provided supportive evidence. In countries of our region in which political reforms in the 1980s and 1990s were accepted by the majority of the nation and led to economic success and raised living standards, CVD mortality dropped. In countries in which the changes were less effective or were less enthusiastically met by society, the rising trend of the years 1970-1990 persisted. There are many other possible explanations for the diversity of mortality trends in Eastern Europe, for example, the increase in alcohol consumption in Russia after 1990 [10] or positive dietary changes and decrease of smoking rates in Poland [11]. It is likely that these changes were important as determinants of the longitudinal trends. However, findings from the POL-MONICA study carried out from 1983 to 1993 do not support the hypothesis that changes in risk factors played a major role in the reversal of the growing trend in CVD mortality by 1990. It was found that changes in the prevalence of risk factors were small and diverse, and were a weak explanation for the dynamic changes in CVD mortality [12].

The role of psychosocial risk factors can be explained in several ways. First they can be related to types of behaviour and lifestyle which have a negative effect on health. For example, depressed persons smoke more and consume more alcohol. Work characteristics are associated with hypertension. There is also evidence on relations between psychosocial risk factors and diet and physical activity. Second, persons with low SES have worse access to medical services, both due to being less economically advantaged but also having less knowledge and being less prone to care about health and to seek medical help. It is unlikely that all effects of psychosocial risk factors could be explained in such ways, but even so they would remain strong determinants of health being 'causes of the causes' of CVD.

Finally, psychosocial risk factors can cause psychological changes which directly increase the risk of CVD in the form of metabolic changes which are the result of neuroendocrine mechanisms and imbalance of the autonomic nervous system. Experiments on animals

suggested that low control over life activated the neuroendocrine system and caused immunological suppression. Stress related to decrease of social position led to endothelium dysfunction and facilitated the development of atherosclerosis in coronary arteries. In humans, stress and anger influence the secretion of cortisol in saliva, and there is evidence of associations between psychosocial risk factors and fibrinogen concentration, insulin resistance, dyslipidaemia and heart rate variability [13].

There is substantial evidence that psychosocial factors are important determinants of health. Our knowledge on the mechanisms is not complete but this does not mean that lack of action can be allowed. Recommendations of the World Health Organization and international scientific societies leave no doubt about this.

There are two main strategies in prevention of CVD. The high risk strategy includes active identification of persons with increased risk and providing them with the appropriate care. At present intervention within this strategy is limited. Besides clinically significant anxiety and depression, which can be treated pharmacologically or by psychotherapy, there is no method of intervention which would be recommended for broad application. International scientific societies and Polish societies which are members of the Polish Forum of Prevention recommend identification of persons exposed to psychosocial stress and intensive intervention against other risk factors in these persons (hypertension, hypercholesterolaemia, smoking, obesity, low physical activity, atherogenic diet and diabetes). There is more potential in the population strategy, which includes intervention targeting factors which determine the health of the whole of society. Challenges in this area confront not only the health sector but the whole class of political leaders and organizers of social life. The special WHO Commission on Social Determinants of Health [2] put them as follows:

Guidelines

1. A large group of psychosocial risk factors includes a variety of non-homogeneous, although frequently associated or interrelated, factors which increase risk of cardiovascular disease. The group includes:
 - a. characteristics related to socio-economic development of the whole population,
 - b. characteristics related to individual socio-economic status,
 - c. sudden events or chronic determinants of life which influence mental health,
 - d. mental reactions and states,
 - e. psychiatric disorders and diseases.
2. Psychosocial risk factors tend to accumulate in the same persons or social groups and are associated with

- improve the conditions of daily life – the circumstances in which people are born, grow, live, work and age,
- tackle the inequitable distribution of power, money, and resources – the structural drivers of those conditions of daily life – globally, nationally and locally,
- measure the problem, evaluate action, expand the knowledge base, develop a workforce that is trained in the social determinants of health, and raise public awareness about social determinants of health.

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undesirable lifestyle and higher exposure to other CVD risk factors.

3. Higher socioeconomic status is associated with lower mortality independently of education level, exposure to other risk factors and of the level of socioeconomic development of the whole population.
4. Education is a simple and the most frequently used method to measure socioeconomic status. However, socioeconomic status also depends on many other factors such as: relations with family and other people, type of occupation and employment, job position, income, possessions and the way they are used.
5. Chronic psychosocial stress, which is a risk factor for depression, can be a result of: acute events which negatively influence the life of the individual, chronic

- organizational or economic difficulties including undesirable working environment (low level of decision making, high demand and low reward), lack of social network and social support (social isolation), and such traits as anxiety and hostility.
6. Depression is a risk factor both for morbidity and mortality due to coronary heart disease. Anxiety increases the risk of sudden death.
 7. The mechanism by which psychosocial risk factors influence risk of CVD are not fully understood. Possible ways are: activation of the neuroendocrine system, and imbalance of the autonomic nervous system. Mechanisms may differ according to psychosocial risk factor, and their role could be related to other CVD risk factors (for example, the role of psychosocial stress related to working environment is more pronounced in men).
 8. Intervention against psychosocial risk factors may be an effective method of CVD prevention as some of them (anxiety and depression) are modifiable. However, modification of psychosocial risk factors, particularly within the population strategy, is usually beyond the routine tasks of clinicians, as these factors are mainly determined by the general socio-economic and political environment. The challenges should be addressed to politicians, representatives of state and local administration, employers and others responsible for the organization, social structure and functioning of society.
 9. Identification of psychosocial risk factors is possible by asking patients to answer a few simple questions (Table I). However, subsequent care and advice must follow the identification. In patients with low socio-economic status or patients exposed to other psychosocial risk factors special attention to lifestyle changes (smoking, diet, physical activity and alcohol consumption) and to treatment of other risk factors (obesity, dyslipidaemia, hypertension, and diabetes) is recommended.
 10. Diagnostics and treatment of depression and emotional stress should be carried out in specialist clinics (behavioural programmes). However, side effects and interactions with agents used to treat coronary heart disease must be considered in the decision-making.

Table I. Questions for the assessment of psychosocial risk factors in clinical practice

• Depression: Do you feel down, depressed and hopeless? Have you lost interest and pleasure in life?
• Social isolation: Are you living alone? Do you lack a close confidant? Do you lack any person to help you in case of illness?
• Work and family stress: Do you have enough control over how to meet the demands at work? Is your reward appropriate for your effort? Do you have serious problems with your spouse?
• Hostility: Do you frequently feel angry over little things? If someone annoys you, do you regularly let your partner know? Do you often feel annoyed about habits other people have?
• Low SES: Do you have no more than mandatory education? Are you a manual worker?

Source: Graham I, et al. Fourth Joint Task Force of the European Society of Cardiology and Other Societies on Cardiovascular Disease Prevention in Clinical Practice. *European guidelines on cardiovascular disease prevention in clinical practice. EJCP 2007; 14 (Suppl. 2) S1-S133.*