Cardiovascular diseases in times of economic crisis: New challenges for medical and community research.

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Abstract

Cardiovascular disease (CVD) is the leading cause of non-communicable morbidity and mortality among developed and developing countries. It is no longer just a health issue, but also represents a major economic burden on health care systems in terms of direct and indirect costs. Early experience from the most affected countries by the ongoing economic crisis (EC) show that the new reality of austerity measures has negative effects on mental health, on some communicable and non-communicable diseases and access to care. Moreover, the available data on cardiovascular mortality and morbidity and related risk factors raise serious concerns about future trends in CVD burden. It is commonly believed that increased levels of psychosocial stress -induced by job loss, uncertainty and decline in financial resources- constitute probably the main reason why the cardiovascular health might deteriorate in times of economic hardship. To mitigate the crisis' adverse effects it is important to maintain access to good-quality healthcare, improve prevention strategies and control of risk factors at individual and population level. On the other side, the prompt response to the crisis situation needs an early warning information system based on surveillance and monitoring for priority health problems including CVDs. In addition, further research regarding the precise role and its implication for practice of psychosocial stress and other potential players in the interaction between the EC and CVDs is needed.

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Cardiovascular disease (CVD) is the leading cause of non-communicable morbidity and mortality among developed and developing countries. It is no longer just a health issue, but also represents a major economic burden on health care systems in terms of direct (eg, hospitalizations, rehabilitation services, physician visits, medications) and indirect costs associated with mortality and morbidity (e.g. losses of productivity due to premature mortality and short- or long-term disability). In 2010, the global direct and indirect cost of CVD was approximately US$ 863 billion and is estimated to rise 22% to US$ 1,044 billion by 2030, indicating that the burden of CVD will have huge impact on health systems and the economy [1].

During 2008-2009 the world has experienced the worst economic crisis (EC) since the Great Depression of the 1930s. In the new, globalised environment the crisis has rapidly developed and spread to almost every part of the world, affecting all aspects of socio-economic life. This particular situation brought fast growth in the unemployment rates, reduction of wages, pension cuts and decline in levels of life satisfaction. Moreover, the budgets for social welfare and healthcare expenditures are being cut in the majority of crisis-hit countries. Early reports from countries that are in the eye of the storm, such as Southern European ones, show that the new reality of austerity measures has negative effects on mental health, on some communicable and non-communicable diseases and access to care [2,3]

Due to major advances in understanding of pathogenesis, prevention and management of CVDs, one of the greatest public health achievements was accomplished during the decades before the crisis (1980-2008): cardiovascular mortality rates had declined markedly in almost all developed countries [4]. This is attributed to reduced incidence to better blood pressure control, increased use of cholesterol-lowering statin drugs, and decline in smoking, and the improved survival after cardiovascular events largely due to better medical interventions. Furthermore, the implementation of population-wide policies focused on healthy diet and lifestyle have contributed substantially to the decrease in cardiovascular mortality [5].

The post crisis data on trends in cardiovascular mortality in the United States showed a deflection point in 2011, with essentially flat rates from 2011-2014 [6]. These data in combination with the slightly increased mortality rates for heart disease and stroke from 2014 to 2015 (0.9% and 3.0%, respectively) raise serious concerns about a possible reverse trend in cardiovascular mortality in near future [7]. However, we need additional evidence to answer the question if it is a mere coincidence or there is a causal link between the current EC and changes in CVD mortality. Meanwhile, it should be noted that almost all the previous studies referring to national-scale economic crises (1986-1999) have observed an increase of CVD mortality in temporal association with the crisis period [8]. A recent study from Italy offers precious evidence regarding the short-term impact of the ongoing EC in the burden of cardiovascular events [9]. The study showed significant increase of acute myocardial infarction incidence, as well as in-hospital mortality, in the areas with the highest intensity of crisis compared with the lower intensity ones.

There is strong evidence suggesting that psychological factors such as stress, anxiety, anger and depression might contribute to risk of CVD at a number of stages, including the long-term development of atherosclerosis and the acute triggering of cardiovascular events [10,11]. Plausible biological mechanisms linking psychosocial stress and CVDs include alterations in the

autonomic nervous system, platelet activation, coagulopathic factors such as plasminogen activator inhibitor-1 and fibrinogen, pro-inflammatory cytokines, endothelial function, neurohormonal factors, and genetic linkages such as with the serotonin transporter mechanism [11]. In addition, negative health behaviours such as poor diet, physical inactivity, smoking and medication non-adherence, which tend to increase among unemployed individuals and other disadvantaged groups during the EC [12-14], also have been shown to mediate between psychosocial stress and CVDs. Based on the available evidence, it is commonly believed that increased levels of psychosocial stress -induced by job loss, uncertainty and decline in financial resources- constitute probably the main reason why the cardiovascular health might deteriorate in times of economic hardship.

The coexistence of EC with the ageing population and the evolving obesity-diabetes epidemic have created a "toxic combination" in terms of cardiovascular risk that makes the exacerbation of the CVD burden at global level inevitable. To mitigate the crisis' adverse effects it is important to maintain access to good-quality healthcare, improve prevention strategies and control of risk factors at individual and population level. Moreover, the preservation of the already made achievements on the management of acute cardiovascular conditions is a great challenge for healthcare systems. In these efforts, physicians and other medical professionals should be prepared to face unavoidable consequences of EC (i.e., heavier workloads, excessive work-related stress, and salary cuts) [15]. Concurrently, it is our responsibility to inform policy makers that these consequences may affect patients' outcomes and stimulate the vicious cycle of increased cost due to defensive medicine practice. On the other side, the prompt response to the crisis situation needs an early warning information system based on surveillance and monitoring for priority health problems including CVDs. Repeated national and community-based surveys are feasible surveillance methods that can provide accurate information on how CVD morbidity and mortality is changing in the context of EC. In addition, further research regarding the precise role and its implication for practice of psychosocial stress and other potential players in the interaction between the EC and CVDs is needed. Over the last decades, the research on different aspects CVDs has been moving ahead rapidly; however, to keep up that pace in the new reality of limited financial resources is another major challenge faced by medical and research community.

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