



ORIGINAL ARTICLE

Costs resulting from premature mortality due to cardiovascular causes: A 20-year follow-up of the DRECE study[☆]



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KEYWORDS

Premature mortality;
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Abstract

Objectives: Cardiovascular diseases are still the leading cause of death in Spain. The DRECE study (Diet and Cardiovascular Disease Risk in Spain), based on a representative cohort of the Spanish general population, analyzed nutritional habits and lifestyle and their association with morbidity and mortality patterns. We estimated the impact, in terms of loss of productivity, of premature mortality attributed to cardiovascular diseases.

Methods: The loss of productivity attributed to premature mortality was calculated from 1991, based on the potential years of life lost and the potential years of working life lost.

Results: During the 20-year follow-up of a cohort of 4779 patients, 225 of these patients died (men, 152). Sixteen percent of the deaths were attributed to cardiovascular disease. The costs due to lost productivity by premature mortality exceeded 29 million euros. Of these, 4 million euros (14% of the total cost) were due to cardiovascular causes.

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PALABRAS CLAVE

Mortalidad prematura;
Costes;
Enfermedades cardiovasculares;
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Conclusions: Premature cardiovascular mortality in the DRECE cohort represented a significant social cost due to lost productivity.

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Mortalidad prematura cardiovascular y sus costes: 20 años de seguimiento del estudio DRECE

Resumen

Objetivos: Las enfermedades cardiovasculares permanecen todavía como la principal causa de muerte en España. El estudio Dieta y Riesgo de Enfermedades Cardiovasculares en España (DRECE) se basa en una cohorte representativa de la población general española en la que se analizan los hábitos nutricionales y de vida estudiando su asociación con los patrones de morbimortalidad. Hemos estimado el impacto, en términos de pérdida de productividad, de la mortalidad prematura atribuida a las enfermedades cardiovasculares.

Métodos: La pérdida de productividad atribuida a mortalidad prematura se calculó desde 1991, basándose en los años de vida y de vida laboral potencialmente perdidos.

Resultados: Durante el seguimiento de 20 años de una cohorte de 4.779 sujetos se produjeron 225 fallecimientos (hombres, 152). El 16% de las defunciones se atribuyó a enfermedades cardiovasculares. Los costes por pérdidas de productividad por mortalidad prematura superaron los 29 millones de euros. De ellos, 4 millones de euros (14% del coste total) se debieron a causas cardiovasculares.

Conclusiones: La mortalidad prematura cardiovascular en la cohorte DRECE ha supuesto un importante coste social por pérdidas de productividad laboral.

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Background

Cardiovascular diseases constitute the main cause of life-years lost due to premature death, when compared to total mortality. The worldwide trend increased between 1990 and 2010,¹⁻³ with an overall increase of 31% (34.9% for ischemic heart disease, 26% for cerebrovascular disease and 47.8% for hypertensive heart disease).

In 2013,⁴ the incidence of acute coronary syndrome in Spain was 115,752 cases (95% CI: 114,822–116,687). This disease represented 24.4% of the total number of life-years lost, 8.5% due to ischemic heart disease and 5.9% due to cerebrovascular disease. In the same year, cancer represented 34.5%^{5,6} of potential years of life lost (PYLL). The costs for lost productivity due to accidents and health problems in 2005 were equal to 4.2% of the gross national product. These costs exceeded 37,969 million euros: 9136 million euros associated with premature mortality, 18,577 million to permanent disability and 10,255 million to temporary disability.⁷

The indirect costs related to mortality results from premature mortality. The indirect costs related to morbidity result from the patients' permanent or temporary disability,^{8,9} which are indicators of the disease burden and the social cost of premature death. These costs are measured in potential years of life lost (PYLL) and, more specifically, potential years of working life lost (PYWLL).

The data from the Diet and Cardiovascular Disease Risk (DRECE) cohort enable us to estimate the indirect costs

resulting from lost productivity due to premature mortality. In this study, we estimated the economic impact of premature mortality in the DRECE cohort.¹⁰

Methods

The objective of the DRECE cohort was to understand the nutritional habits of the Spanish population, monitor the evolution of cardiovascular risk factors and analyze their relationship with mortality.¹¹

The study began in 1991 by monitoring a representative sample of the Spanish population consisting initially of 4787 individuals between the ages of 5 and 59 years, selected using randomized sampling and stratified by sex and age. The data cover the period from 1991 to 2011. Health status and causes of death were compiled annually by a partnership with the National Statistics Institute (INE).¹²

To calculate premature mortality, an approach focused on incidence was used, referring to newly registered cases. To perform this calculation, the PYLL (an indicator that considers the years that an individual ceases to live if they die before the theoretically expected age) were calculated using the procedure indicated in the methodological notes of the INE.¹³

For that purpose, the year of birth and the year and cause of death were obtained. Deaths occurring between the start of the recruitment period in 1991 and up to 2011 were considered. For the calculation of the PYLL, an interval

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