

## Cardiovascular Disease and Gross Domestic Product in Spain: Correlation Analysis By Autonomous Community. Response to Related Letters



### *Enfermedad cardiovascular y producto interior bruto en España: análisis de correlación por comunidades autónomas. Respuesta a cartas relacionadas*

#### To the Editor,

We read with great interest the letters by San Román et al., Lozano et al., and Elola et al. in reference to the recent publication of our scientific letter on the differences in cardiovascular disease between Spanish autonomous communities in terms of gross domestic product.<sup>1</sup> We would like to thank the authors for their comments, as they have prompted us to assess some of the arguments we put forward in greater depth. Their comments also reveal that we paid insufficient attention to the impact of socioeconomic aspects on cardiovascular disease.

First, in reference to the letter by San Román et al., we are in full agreement with their position and also agree that the best quality metric for infarction (ST-segment elevation acute coronary syndrome) is rapid and adequate reperfusion. Given the limitations of the sources of information consulted, we decided to include only widely recorded cardiovascular parameters, such as the rate of primary angioplasty.

In the case of the letter by Lozano et al., we agree that an individual's income is a very important factor to take into account. Indeed, one of the primary challenges facing our health authorities is probably guaranteeing equal health care coverage for everyone regardless of income or place of residence.

Finally, regarding the comments made by Elola et al., we believe that estimation of cardiovascular risk should not only take into account traditional risk factors, but also social factors, such as those they list. These factors include the degree of coverage and access to all levels of health care, labor market situation (employment/unemployment rate), and level of education (degree of literacy).<sup>2</sup> All of these factors bear a relation to the per capita gross domestic product of a given region and so, inevitably, there are interregional differences in efficiency and equality. Unfortunately, our community (one of those with the lowest gross domestic product) also has worse risk factor control,<sup>3</sup> in contrast to

other international experiences. This highlights the need for effective policies to combat social inequality, as suggested by Elola et al.

#### CONFLICTS OF INTEREST

Luis M. Pérez-Belmonte has a Jordi Soler post-qualification research grant from the Foundation for Cardiovascular Research Network (FIRCAVA), Cardiovascular Research Network (RIC).

Manuel Jiménez-Navarro,\* Luis M. Pérez-Belmonte, Juan José Gómez-Doblas, and Eduardo de Teresa-Galván

*Unidad de Gestión Clínica del Corazón, Hospital Universitario Virgen de la Victoria, Instituto de Investigación Biomédica de Málaga (IBIMA), Universidad de Málaga (UMA), Red de Investigación Cardiovascular (RIC), Málaga, Spain*

\* Corresponding author:

E-mail address: [jimeneznavarro@secardiologia.es](mailto:jimeneznavarro@secardiologia.es) (M. Jiménez-Navarro).

Available online 25 January 2017

#### REFERENCES

1. Escaño-Marín R, Pérez-Belmonte LM, Rodríguez de la Cruz E, et al. Enfermedad cardiovascular y producto interior bruto en España: análisis de correlación por comunidades autónomas. *Rev Esp Cardiol.* 2017;70:210–212.
2. Baena-Díez JM, Félix FJ, Grau M, et al. Tratamiento y control de los factores de riesgo según el riesgo coronario en la población española del estudio DARIOS. *Rev Esp Cardiol.* 2011;64:766–773.
3. Marmot M. Social determinants of health inequalities. *Lancet.* 2005;365:1099–1104.

#### SEE RELATED CONTENT:

<http://dx.doi.org/10.1016/j.rec.2016.11.031>

<http://dx.doi.org/10.1016/j.rec.2016.12.015>

<http://dx.doi.org/10.1016/j.rec.2016.12.016>

<http://dx.doi.org/10.1016/j.rec.2016.11.036>

1885-5857/

© 2016 Sociedad Española de Cardiología. Published by Elsevier España, S.L.U. All rights reserved.