The effect of marital status on social and gender inequalities in diabetes mortality in Andalusia

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Abstract
Objective: To assess the modifying effect of marital status on social and gender inequalities in mortality from diabetes mellitus (DM) in Andalusia.

Material and methods: A cross-sectional study was conducted using the Andalusian Longitudinal Population Database. DM deaths between 2002 and 2013 were analyzed by educational level and marital status. Age-adjusted rates (AARs) and mortality rate ratios (MRRs) were calculated using Poisson regression models, controlling for several social and demographic variables. The modifying effect of marital status on the association between educational level and DM mortality was evaluated by introducing an interaction term into the models. All analyses were performed separately for men and women.

Results: There were 18,158 DM deaths (10,635 women and 7523 men) among the 4,229,791 people included in the study. The risk of death increased as the educational level decreased. Marital status modified social inequality in DM mortality in a different way in each sex. Widowed and separated/divorced women with the lowest educational level had the highest MRRs, 5.1 (95% CI: 3.6–7.3) and 5.6 (95% CI: 3.6–8.5) respectively, while single men had the highest MRR, 3.1 (95% CI: 2.7–3.6).

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Introduction

The growing importance of diabetes mellitus (DM) in relation to the global disease burden\(^1\) has favored the search for other determining factors beyond obesity and physical exercise. Socioeconomic status has been investigated in many studies, where it has been shown to be related to DM prevalence, incidence and mortality, and to the incidence of associated complications.\(^2\) In the evaluation of social inequalities in DM, the most widely used measures of individual socioeconomic status have been educational level, occupation, income and—from a contextual perspective—deprivation indices. Regarding social inequality the trend observed in most studies indicates that the lower the educational level\(^3\) or the greater the deprivation index,\(^4\) the higher the frequency of DM. Another consistent finding in the literature is that relative inequalities are more pronounced in women—that is, a fact that has been attributed by some authors to the greater prevalence of obesity and sedentary habits among females,\(^5\) with both of these factors being more common among the lower socioeconomic levels. In contrast, other investigators consider this situation to be a consequence of psychosocial and occupational factors.\(^6\)

The socioeconomic status of a patient with DM is also associated with the mechanisms related to the evolution of the disease, such as accessibility to healthcare services, the quality of care, knowledge of the disease, or capability in following the medical instructions received.\(^7\) Furthermore, in DM as in other chronic diseases, social support in the immediate daily setting of the patient is crucial for maintaining the norms and behavior aimed at controlling the disease, particularly those related to eating habits.\(^8\)

One of the factors to be taken into consideration with regard to social support in the immediate daily setting is marital status. Accordingly, the lesser mortality risk seen in married individuals, particularly males, could be explained in part by a protective effect related to the greater social support conferred by marriage.\(^9\) On the other hand, marriage, through the mutual care afforded by the couple (i.e., adherence to diet instructions, laboratory tests, treatment compliance, psychological support), in turn promotes
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