

A. Valladares  
T. Dilla  
J. A. Sacristán

# Depression: a social mortgage. Latest advances in knowledge of the cost of the disease

Departamento de Investigación Clínica  
Lilly, S.A.  
Madrid (Spain)

**Introduction.** Following the latest examination of the worldwide mental health situation, the World Health Organization has estimated that depression produces the greatest decrement in health compared with other chronic diseases, and has encouraged to all countries to increase investment and resources in this field.

**Methodology.** On investing resources for the care of patients with depression, cost of illness studies are a complement to morbidity-mortality studies, and are of great relevance in defining health care policies. The present study describes the economic impact of depression in our setting, in the light of the most recent publications on this subject.

**Results.** The total cost of depression in Europe has been estimated to reach 118 billion euros, and most of this amount (61%) is due to indirect costs associated with sick leave and productivity losses. The economic burden of depression in Spain could add up to 5.005 million euros a year, with a resource category distribution very similar to that found in Europe as a whole.

**Conclusions.** Health care systems and society must cope with the important costs of depression, which implies intense resource utilization, fundamentally outside the health care sector as such. There are a number of areas in which improvements can be made in order to reduce this important burden associated with depression, though the incorporation of health economics to public health care policies must become a priority.

**Key words:**

Depression. Economic impact of disease. Europe. Spain.

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## La depresión: una hipoteca social. Últimos avances en el conocimiento del coste de la enfermedad

**Introducción.** Tras la realización del último examen sobre la situación mundial de la salud mental, la Organi-

**Correspondence:**

Amparo Valladares  
Departamento de Investigación Clínica  
Lilly, S.A.  
Av. de la Industria, 30  
28108 Alcobendas (Madrid) (Spain)  
E-mail: valladares\_maria\_amparo@lilly.com

zación Mundial de la Salud ha estimado que la depresión produce la mayor disminución en salud en comparación con otras enfermedades crónicas y ha instado a todos los países a aumentar las inversiones y la cobertura de servicios en esta materia.

**Metodología.** A la hora de invertir recursos en el cuidado de los pacientes con depresión, los estudios de costes de la enfermedad son complementarios a los de morbilidad y de gran relevancia a la hora de establecer políticas sanitarias. La finalidad de este trabajo es describir el impacto económico de la depresión en nuestro entorno a la luz de las últimas publicaciones a este respecto.

**Resultados.** El coste total de la depresión en Europa se ha estimado en 118 billones de euros, y la mayor parte de esta cifra (61%) se debe a los costes indirectos referidos a bajas por enfermedad y pérdidas de productividad. La carga económica de la depresión en España ascendería a 5.005 millones de euros anuales, con una distribución por categoría de recursos muy parecida a la europea.

**Conclusiones.** Los sistemas sanitarios y la sociedad tienen que hacer frente al alto coste de la depresión dado que conlleva una elevada utilización de recursos, principalmente fuera del sector sanitario. Existen diversas áreas de mejora con el objetivo de reducir la carga social de la depresión, pero la incorporación de la economía de la salud mental a las políticas sanitarias debe convertirse en una prioridad.

**Palabras clave:**

Depresión. Impacto económico de la enfermedad. Europa. España.

## INTRODUCTION

In recent years, depression has become a priority public health concern, due to its high prevalence and consequences in the form of mortality, morbidity and economic and social costs. The ESEMeD project (European Study of the Epidemiology of Mental Disorders) showed that almost 13% of respondents reported a developed major depressive dis-

order at some time in their lives, with around 4% experiencing major depression in the past 12 months<sup>1</sup>. The total number of people with depression in Europe reached 21 million in the year 2004<sup>2</sup>.

Depression exerts an important effect upon patient physical, mental and social functions, and is associated with an increased risk of premature death. Depending on the severity of the condition, it may complicate basic and daily life activities, causing great impairment in routine function and quality of life<sup>3</sup>. In a recent evaluation of the worldwide mental health situation, it has been estimated that depression produces the greatest decrement in health compared with chronic diseases such as angina, arthritis, asthma, and diabetes<sup>4</sup>. Thus, depression is considered to be one of the main disease burdens in Europe<sup>5</sup> and in the rest of the world<sup>6</sup>, in terms of disability-adjusted life years, and the World Health Organization (WHO) predicts that by the year 2020 depression will have become the second most important cause of disability in the world, after cardiovascular disease<sup>7</sup>.

However, depression affects not only patients but also society as a whole, since it has an economical impact upon the community that extends beyond the direct costs related to health resource utilization. Depression affects the working performance of the individual and entails important costs in terms of productivity loss and sick leave<sup>8,9</sup>. In addition, there are other intangible costs such as those derived from lost opportunities on the part of patients with mental problems and their relatives. Estimation of the economical cost of depression is therefore essential for better understanding of the magnitude of the problem, and for efficient distribution of health care, human and material resources<sup>10</sup>.

Cost of illness studies aim to determine how much society spends on a given disorder, and to identify the different cost components involved. Such studies are complementary to morbidity-mortality studies, and highly relevant to define health care policies destined to reduce the undesirable effects of disease upon patients, the health care system, and society in general<sup>2,10</sup>. Since the reference studies on the costs of depression were published in the United States and in Europe in the nineties<sup>11-13</sup>, a number of authors have made advances in this field. Recently, a number of reviews of the literature on the subject have been published<sup>15-17</sup> along with the results of the pan-European project «Costs of disorders of the brain in Europe» including depression<sup>2,14</sup>. The present study describes the economic impact of depression in our setting, in the light of these latest publications, with the purpose of identifying different research and development needs that may help reduce the financial burden of this disorder.

## ECONOMIC COST OF DEPRESSION

Luppa et al. have conducted a systematic review of the cost of illness studies on depression, assessing their methodo-

logical quality and comparing the results obtained<sup>15</sup>. The authors concluded that depression is associated to a considerable increase in both direct and indirect costs. Despite the different methodologies used to estimate the costs in the 24 publications located, the additional mean annual direct costs per depressed patient ranged from \$1,000-\$2,500, depending on the financing modality involved. The direct costs include the medical (outpatient, inpatient and pharmaceutical costs) and non-medical costs (social services and transport). Few studies included the evaluation of indirect costs, a fact that makes it more complicated to estimate them: \$2,000-\$3,700 for morbidity costs (disability, productivity loss due to absence from the workplace or reduced productivity at workplace caused by the disease) and \$200-\$400 for mortality costs (productivity loss due to premature death).

Likewise, in 2006 Sobocki conducted a review of the literature on the costs of depression, with the analysis of 19 publications<sup>16</sup>. Although the differences in design, aim and methodology of the different studies complicated the direct comparison of results, this author reported that the findings clearly indicate that the costs of depression found outside the health care sector constitutes the bulk of the cost, specifically, between 61%-97% of the total cost<sup>2,16</sup>.

Donahue et al. have found from the existing literature that depression implies an important use of resources and money, and that much of the expenditure is not the result of treatment costs<sup>17</sup>. Depression is also an important source of productivity loss and sick leave: workers with depression were found to have between 1.5 and 3.2 more work disability days per month than their non-depressed counterparts. According to the authors, the existing studies on the impact of depression treatment on working productivity costs suggest that the gains made in reduced absenteeism and improved productivity at work may offset the cost of depression treatment.

## HOW MUCH DOES DEPRESSION COST IN EUROPE?

In line with these results, a study has recently been presented on the economic cost of depression in Europe<sup>2</sup>. The authors developed a costs model, combining epidemiological and economic data on depression found in the literature, and statistical data from international institutions. The total cost of depression in Europe has been estimated to reach €118 billion, and in accordance with earlier studies, most of this amount is due to indirect costs associated with sick leave and productivity losses (61%). The rest is divided among outpatient care (19%), hospitalization (9%), pharmacological treatments (8%) and mortality (3%).

As a result of the fact that the indirect costs are the dominant source of expenditure, the majority of the costs are found in the working population (89%), followed by the elderly who accounted for 11% of the costs. The youngest

age group (0-17 years) only made up a minor part of the costs, of which the majority was outpatient care costs.

This study also indicated that the cost per patient varies significantly from one country to another. In this sense, the costs are highest in the countries with the greatest national income figures and highest public health expenditures per capita: Switzerland, Germany and France exceed €2,000 per patient in medical care and pharmacological treatment, while the figure is limited to €1,000 per patient in the case of Spain.

## THE SPANISH BILL

In Spain, depression is the most common mental disorder. The results of the ESEMeD-Spain, which has evaluated the epidemiology of mental disorders in the Spanish general population, indicate a lifetime prevalence of depression of 10.55%, and a 12 month prevalence of 3.96%. These figures moreover are expected to increase considerably in the future<sup>18</sup>. However, the European comparative studies rank Spain among the countries on the continent with the lowest number of cases of depression<sup>2,19</sup>.

Depression is the second most common cause of short-term sick leave in Spain, after musculoskeletal problems<sup>20</sup>.

Table 1	Summary points
	<p>Depression is the most common mental disorder in the general population. The total number of people with depression in Europe reached 21 million in the year 2004</p> <p>Depressive disorders constitute one of the leading causes of global disease burden, mainly as a result of the disability caused. The World Health Organization (WHO) estimates that by the year 2020, depression will become the second most important cause of disability worldwide</p> <p>The total cost of depression in Europe has been estimated to reach €118 billion, and most of this amount (61%) is due to indirect costs associated with sick leave and productivity losses</p> <p>Despite the increase in antidepressant prescription in Spain, only 9% of the total costs of the disease correspond to pharmacological treatment</p> <p>The cost and burden of mental disease in Europe is almost double that of cancer. However, public funding of depression research is smaller (€38 million) than cancer research (€1,500 million)</p> <p>Following the examination of the worldwide mental health situation, the World Health Organization (WHO) has appeal to all countries to increase investment and resources in this field</p> <p>The incorporation of health economics to public health care policies must become a priority concern for designating the available health resources in a balanced manner, and avoiding a lack of effectiveness</p>

The prevalence in women (14.47%) more than doubles that in males (6.29%), and the main risk factors are work-related: people on sick leave due to disease or maternity leave, unemployed individuals, and disabled or incapacitated persons are the population groups at highest risk and which require most health care. In addition, having been married and living in a large city also appear to be associated with the risk of depression in this country<sup>18</sup>.

The economic burden of depression in Spain has been examined in a number of international<sup>21-23</sup> and national studies<sup>10,24</sup>. In the year 1998, the annual cost of depression was estimated to total €745 million<sup>24</sup>, though according to the recent estimation by Sobocki, the current cost is € 5,005 million a year-with a resources category distribution very similar to that found in Europe as a whole: the indirect costs represent 71%, and the direct costs 29%<sup>2</sup>. On examining the composition of the direct costs, it is seen that despite the increase in antidepressant prescription in Spain<sup>25</sup>, only 9% of the total costs correspond to pharmacological treatment (fig. 1)<sup>2</sup>.

## REDUCING THE DISEASE BURDEN OF DEPRESSION

A number of authors have pointed to the following areas with room for improvement, with the purpose of reducing the social burden of depression:

- *Research in neuroscience.* Improved knowledge of the neurophysiology of depression will allow the development of new interventional strategies to shorten the time to therapeutic response, ensure effective treatment of the residual symptoms of depression, or reduce the number of cases of refractory depression. However, there is a great difference between what depression costs society and the resources invested in research in this field: the cost and burden of mental disease in Europe is almost double that of cancer, however public funding of depression research is smaller

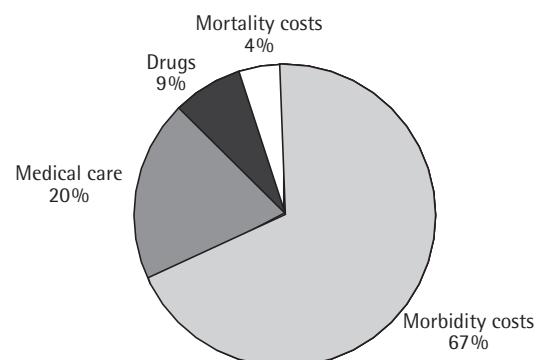


Figure 1 Distribution of the costs of depression in Spain by resource categories<sup>2</sup>.

(€38 million) than cancer research (€ 1,500 million)<sup>26</sup>.

- *Adequate diagnosis and treatment.* The data indicate that at present in Spain there may be approximately 6 million depressed individuals, of which only a third have been adequately diagnosed<sup>27</sup>. However, distinguishing depressive disorders from other types of conditions is just as important as avoiding underdiagnosis, in order to prevent prescribing treatments for disorders that in fact do not constitute depression. On the other hand, complete remission of depression (the objective of adequate treatment) is directly related to patient quality of life and to reduction in the costs associated with the disease<sup>28</sup>. Interventions aiming to increase the depression response and remission rates can increase the direct costs over the short term. However, since these represent only a small proportion of the total cost of the disease, they are very likely to be compensated by the resulting reduction in morbidity costs<sup>2,17</sup>.
- *Improvement of treatment compliance.* The long duration of treatment, the delay in onset of action, a lack of patient confidence in the efficacy of the medication, adverse effects, a lack of information and awareness of the disease, and the associated social stigma are factors that contribute to patient failure to adhere to antidepressive treatment. The consequences of treatment non-compliance are very important, not only in terms of patient quality of life, but also as regards control of the costs of a disease which sometimes requires life-long treatment<sup>27,29</sup>. It is therefore necessary to center effort not only on measuring and characterizing treatment non-compliance, but also on introducing programs and initiatives to improve adherence rates and thus health outcomes<sup>30</sup>.
- *Development of health care policies taking into account mental health intervention strategies that are effective, generalizable and assumable on the part of the health care system, and which are targeted equally to prevention and treatment-ensuring an adequate balance between both.* In recent years, European governments have been aware of the importance of mental health in our setting, as has been demonstrated by the publication of a mental health action plan for Europe<sup>31</sup>. However, increased awareness has not yet been translated into greater investment of resources<sup>32</sup>. Emphasis has been placed above on the importance of estimating the economic cost of mental problems in order to allow for rational designation of health care resources. In this context, cost of illness studies, together with the cost-effectiveness analysis of different therapeutic strategies, must become an essential tool for the decision taking process. The «Mental Health Strategy of the National Health Care System», published by the Spanish health authorities in 2007, defines six major lines of intervention: the promotion of mental health, with

the prevention and eradication of social stigmas; health care of patients; coordination among institutions, scientific societies and associations; the training of health care professionals; the promotion of research; and information and evaluation systems<sup>33</sup>. However, although the plan justifies the health care and social importance of mental disorders, and acknowledges that there is insufficient information on the burden of the disease in Spain, its objectives do not include the economics of mental health. The plan only makes the following recommendation for the regions in the country, regarding the development of strategic guidelines for the management of mental disorders: «the continued diffusion of scientific information on the utility, effectiveness and cost-efficiency of medicines among health care professionals and patients»<sup>33,34</sup>.

In conclusion, depression constitutes one of the leading causes of disease burden worldwide, due to its high prevalence, deleterious effects upon patient function, and chronic nature. As a result, the health care systems and society as a whole must cope with the important costs of this disease, which implies intense resource utilization and large costs - fundamentally outside the health care sector as such. There are a number of areas in which improvements can be made in order to reduce this important burden associated with depression - though the incorporation of health economics to public health care policies must become a priority for the taking of decisions destined to reduce the undesirable effects of this disease upon the patients, the health care system, and society in general.

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