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Economic burden of major depressive disorder: a case study in Southern Iran

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Abstract

Background: Depression disorders are a leading cause of disability in the world which imposes a significant economic burden on patients and societies The present study aimed to determine the economic burden of Major Depressive Disorder (MDD) on the patients referred to the reference psychiatric single-specialty hospitals in southern Iran in 2020.

Methods: This cross-sectional research is a partial economic evaluation and a cost-of-illness study conducted in southern Iran in 2020. A total of 563 patients were enrolled through the census method, and a researcher-made data collection form was used to gather the required information. The prevalence-based and the bottom-up approaches were also used to collect the cost information and calculate the costs, respectively. The data on direct medical, direct non-medical, and indirect costs were obtained using the information in the patients' medical records and insurance bills as well as their self-reports or those of their companions. To calculate the indirect costs, the human capital approach was used as well.

Results: The results showed that the annual cost of MDD was $ 2717.41 Purchasing Power Parity (PPP) (USD 2026.13) per patient in 2020. Direct medical costs accounted for the largest share of the costs (73.68%), of which hoteling and regular beds expenses were the highest (57.70% of the total direct medical costs). The shares of direct non-medical and indirect costs were 7.52 and 18.80%, respectively, and the economic burden of the disease in the country was estimated at $7,120,456,596 PPP (USD 5,309,088,699).

Conclusion: In general, due to the high prevalence of MDD and the chronicity of the disease, the costs of its treatment can impose a heavy economic burden on the society, healthcare system, insurance system, and the patients themselves. Therefore, it is suggested that health policymakers and managers should take appropriate measures to increase the basic and supplemental insurance coverage of these patients. In addition, in order to reduce the costs, proper and equitable distribution of psychiatrists and psychiatric beds, expansion of home care services, and use of Internet-based technologies and the cyberspace to follow up the treatment of these patients are recommended.

Keywords: Economic burden, Major depressive disorder, Direct medical costs, Direct non-medical costs, Indirect costs

Introduction

Major depression, also known as major depressive disorder (MDD) or clinical depression, is a mood disorder that causes a constant feeling of sadness and loss of interest [1]. Major depression affects how a person feels, thinks, and behaves, and may lead to a variety of emotional and

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patients [39]. The reason for this discrepancy could be the difference in the number of non-native patients in these studies as well as the difference in travel and accommodation costs in the countries studied.

In this study, IC accounted for 18.8% of the total cost of patient treatment, which is in line with the results of the study by Pour Ahmadi et al. (2019) [29].

However, the results of a study by Sobocki et al. (2007) on the economic burden of depression in Sweden from 1997 to 2005 showed that the total cost of depression increased from € 1.7 billion in 1997 to €3.5 billion in 2005. In other words, the economic burden of depression was doubled in the society, while direct costs were relatively stable over time. In 2005, indirect costs accounted for € 3 billion (86% of the total costs), which is inconsistent with the results of the present study, perhaps due to the high daily wages of the patients in these countries [40].

The results of the studies by Cheng et al. (2012) in South Korea [30], Greenberg et al. (2015) in the United States [38], Sobocki et al. (2007) in Sweden [40], and Tanner et al. (2020) in Canada [34] showed that IC accounted for a relatively high percentage of the total costs.

Regarding to increase the prevalence rate in psychiatry disorders and the high cost for their treatment during the last decade, the government should focus on prevention this type of diseases. These diseases have several causes, one of the most important causes is socio-economics problem that need to governments' effort through programming and problem solving. Also, the ministry of health should foresight the hospital beds and in order to financial protection, health insurance organizations must participate in share of costs greatly.

One limitation of the present study was the self-declaration of the patients or their companions about DNMC and IC, as they were likely to forget or approximate recall some of the costs (recall bias). Another research limitation, defect information in some patients' medical records including prescribed medicines Furthermore, intangible costs were not calculated in this study due to the impossibility of measuring them accurately.

Moreover, Due to lack of some patients' income information, we used minimum wages of labor department and for improving the process of cost estimation, the sensitivity analysis was done.

The number of patients was another limitation in finding generalizability. Although, we include almost all patients with major depressive disorder.

Conclusion

In general, due to the high prevalence of MDD in Iran and the chronicity of the disease as well as the need for lifelong treatment, the costs of treating this disease can impose a heavy economic burden on the society, the healthcare system, the insurance system, and the patients themselves. According to the obtained results, in order to reduce the economic burden of this disease, it is suggested that health policy makers and managers try to increase the insurance coverage of the care required by MDD patients. Due to the high cost of hoteling and regular beds, the provision of such services should also be covered by supplemental insurance. In addition, in order to reduce the travel costs that accounted for the highest percentage of DNMC, the following measures are recommended to prevent unnecessary patient travel: appropriate and equitable distribution of psychiatrists and psychiatric beds, expansion of home care services for MDD patients, and use of Internet-based technologies and the cyberspace to follow up the patients' treatment.

Abbreviations

YLDs: Years of life lost due to disability; MDD: Major Depressive Disorder; ECO: Echocardiography; CT scan: Computed Tomography Scan; MRI: Magnetic Resonance Imaging; WHO: World Health Organization; DMC: Direct Medical Costs; DNMC: Direct Non-Medical Costs; IC: Indirect Costs; PPP: Purchasing Power Parity; GDP: Gross domestic product.

Supplementary Information

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Additional file 1.

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Authors' contributions

Kh.K.: Conceptualization, Data curation, Supervision, Validation, Writing - review & editing. A.H.: Conceptualization, Data curation, Methodology, Supervision, Validation, Writing - review & editing. Mo.R.: Data curation, Methodology, Software, Roles/Writing - original draft. Z.G.: Conceptualization, Data curation, Methodology, Supervision, Validation, Writing - review & editing. E.M.: Data curation, Methodology, Software, Validation, Writing - review & editing. Me.R.: Data curation, Methodology, Software, Validation, Writing - review & editing. F.L.: Conceptualization, Data curation, Methodology, Software, Project administration, Investigation, Supervision, Validation, Writing - review & editing. All authors approved the final version and took responsibility for its content.

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Availability of data and materials

The datasets generated and analyzed during the current study are available in the Science Data Bank repository, https://www.scidb.cn/s/IF7BNv.

Declarations

Ethics approval and consent to participate

This study was conducted in accordance with International Declaration of Helsinki. The study protocol was approved by the Ethics Committee of Shiraz