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Presenteeism, Absenteeism, and Lost Work Productivity among Depressive Patients from Five Cities of Colombia

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ABSTRACT

Objectives: To estimate productivity losses due to absenteeism and presenteeism and their determinants in patients with depression from five Colombian cities. **Methods:** We used data from a multicenter, mixed-methods study of adult patients diagnosed with major depressive disorder or double depression (major depressive disorder plus dysthymia) during 2010. The World Health Organization's Health and Work Performance Questionnaire was used to assess absenteeism and presenteeism. We explored the determinants of productivity losses using a two-part model. We also used a costing model to calculate the corresponding monetary losses. **Results:** We analyzed data from 107 patients employed in the last 4 weeks. Absenteeism was reported by 70% of patients; presenteeism was reported by all but one. Half of the patients reported a level of performance at work at least 50% below usual. Average number of hours per month lost to absenteeism and presenteeism was 43 and 51, respectively. The probability of any absenteeism was 17 percentage points lower in patients rating their mental health favorably compared with those rating it poorly (standard error [SE] 0.09; $P < 0.10$) and 19 percentage points higher in patients with at least one comorbidity compared with patients with none (SE 0.10; $P < 0.10$). All other covariates showed no significant associations on hours lost to absenteeism. Patients with favorable mental health self-ratings had 16.4 fewer hours per month of presenteeism compared with those with poor self-ratings (SE 4.52; $P < 0.01$). The 2015 monetary value of productivity losses amounted to US $840 million. **Conclusions:** This study in a middle-income country confirms the high economic burden of depression. Health policies and workplace interventions ensuring adequate diagnosis and treatment of depression are recommended.

Keywords: absenteeism, depression, presenteeism, productivity.

Introduction

Major depressive disorder (MDD) is an important cause of burden of disease worldwide because of its high prevalence, chronic course, and association with other medical problems [1]. Globally, in 2013 it was the fourth leading cause of disability-adjusted life-years in the population aged 18 to 59 years. MDD also has a large negative socioeconomic impact related to the condition's adverse effect on educational attainment, life-cycle events (marital timing and stability, childbearing, and parenting), and role performance [2–5]. MDD is responsible for 5.1% of the population attributable fraction of days completely out of role, a combined measure of not being able to work or carry out normal activities [6], ranking fourth after pain disorders, headache/migraine, and cardiovascular disease. The impairment levels associated with MDD are higher compared with those associated with other severe chronic conditions such as cancer, diabetes, and heart disease [2].

The economic consequences of occupational impairment due to depression are substantial. Fifty to 60% of the total economic burden of depression [7,8] is a result of patients not going to work (absenteeism) or from a decrease in their performance at work (presenteeism) [2]. Studies in developed countries have found that employees with depression lose 20% of total work time; 81% of these losses are accrued to presenteeism and 19% to absenteeism [9–11].

In 2013, MDD accounted for 6.24% of the total disability-adjusted life-years in the population aged 18 to 59 years in Latin America and the Caribbean, ranking as the third leading cause of burden of disease [12]. To our knowledge, no studies have quantified the impact of depression in the workplace in Latin America [13]. This information is key to strengthen the case for increasing prevention and access to better mental health services in the health policy agenda and in the initiatives to improve labor productivity. This study uses data from the Economic Burden of Depression Study (*Carga Económica de la Depresión* [CED])

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conducted in Colombia [14] to estimate productivity losses in employed patients with MDD, identify clinical and sociodemographic characteristics that may be correlated with these losses, and calculate their monetary value.

Methods

The CED Study

The CED sought to estimate the economic costs of MDD and double depression (MDD plus dysthymia) in a convenience sample of six mental health facilities located in medium to large cities of Colombia [14]. The CED was designed as a cost-of-illness, mixed-methods, multicenter study. It took place between June 2008 and June 2010 and was approved by the Ethics Committee of the Universidad Javeriana School of Medicine in Bogotá, Colombia. Methods and results of the CED are reported elsewhere [14].

The principal investigator coordinated all fieldwork. Patients who attended inpatient or outpatient services at each site were invited to participate in the study if they met the following eligibility criteria: they were aged between 18 and 65 years and were diagnosed with MDD or double depression according to the criteria of the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed., Text Revision) and the *International Classification of Diseases, Tenth Revision*. For diagnosis of MDD, the criteria require the presence of a core set of symptoms such as depressed mood, loss of interest or pleasure, and fatigue or low energy for at least 2 weeks, most of the time and on most of the days, and also a change from previous functioning [15,16]. An additional set of symptoms defines the severity of the illness, such as changes in appetite, feelings of worthlessness, difficulty concentrating or indecisiveness, and thoughts of death. Dysthymia is characterized by chronic and persistent low mood that is not severe enough to meet the criteria for an MDD, although both conditions frequently occur simultaneously.

Study objectives and procedures were fully explained and informed consent was obtained. Patients who were not able to answer the questionnaire (patients with mental retardation, active psychosis, or brain disorders compromising memory or cognition), retired persons, or patients not giving informed consent were excluded. Participants were recruited sequentially to reach a target sample of 295 patients (64 per site) divided into equal groups by sex and age, 18 to 45 years old and older than 45 years.

Patients responded to a structured orally delivered questionnaire about socioeconomic characteristics, clinical outcomes, labor outcomes, and out-of-pocket costs of illness, applied by a trained medical resident, nurse, or psychologist. Responses were recorded in a paper form and subsequently entered by a survey technician into an electronic database. Data quality was ensured by a supervisor available on phone on a continuous basis to assist with fieldwork, who also conducted monthly site visits and checked questionnaires and the database for errors and inconsistencies.

The questionnaire included the World Health Organization's Health and Work Performance Questionnaire (HPQ), a short instrument assessing three main domains of workplace performance: absenteeism, presenteeism, and critical incidents [17,18]. The HPQ has been shown to be a reliable and valid instrument [19]. Absenteeism is measured by asking about hours and days of work the respondent missed because of illness during the past month. To measure absolute presenteeism, respondents rate their overall work performance during the previous 4 weeks on a 0 to 10 scale, 0 being "worst possible work performance" and 10 the "top work performance" a person could have in his job. Relative presenteeism is the ratio of the value of own performance and the value of the respondent's rating of the usual performance of most workers in a similar occupation. An overall measure of lost work productivity is then calculated by summing absenteeism and absolute presenteeism converted into lost hours and days equivalents (percent of productivity multiplied by hours/days worked).

Statistical Analysis of HPQ Data

This study used data from the HPQ baseline interview, which was only for patients who reported being employed in the last 4 weeks (n = 133 out of 295). Of these, 26 observations were excluded, either because they had missing data about presenteeism or absenteeism (14 cases) or because of extreme values for expected or worked hours (12 cases). Thus, the final study sample comprises 107 patients. The sociodemographic characteristics of the excluded cases were very similar to the rest of the sample, and so we do not expect selection issues to arise.

We conducted descriptive statistics for dependent and independent variables. To examine the relationship of health and sociodemographic characteristics with absenteeism and presenteeism, we used two separate analytic approaches. For absenteeism, we used a two-part model given that 30% of the sample did not report any absenteeism and that the distribution was right-skewed. The first part of the model consisted of a probit regression model with marginal effects on whether the individual experienced any absenteeism; the second part was an ordinary least-squares regression on the number of hours of absenteeism conditional on having any nonzero hours of absenteeism. This is a conventional approach to estimate costs and demand for health services (i.e., outcomes with censored distributions) allowing the researcher to use parametric models with a seemingly normal conditional distribution (the second part) [20]. The effect of our set of independent variables on hours of presenteeism was analyzed using linear regression, because only one individual reported 0 hours of presenteeism, and therefore the distribution of presenteeism was approximately normal (skewness = 0.04). To ensure that the distributional assumptions of the model were not driving the results, we ran sensitivity analyses using a generalized linear model specification for the second part of the absenteeism model and for the presenteeism model. Results from the generalized linear model specification are not different from those of the linear specification. These are available from the authors on request.

The regressions included two different sets of independent variables. The first set included demographic and health characteristics (age, sex, and mental health self-rating as average to very good/poor or very poor) and a binary variable accounting for having at least one nonmental comorbidity. The second set accounted for socioeconomic variables: employment status (full-time/part-time/self-employed) and education level (less than university or technical education/incomplete university or technical education/university-level education).

Monetary Value of Lost Productivity

We calculated the possible annual monetary value of productivity losses (A, in Colombian pesos [Col$]) due to absenteeism and presenteeism for the five cities in the study by constructing the following costing model:

$$A_{ijk} = \mathrm{TWPD}_{ijk} \times W_{ij} \times E_{ik} \times \left(H_{ijk} \times S_{ik}\right) \times P$$

For every age group i, sex j, and city k, TWPD denotes the total working population with moderate to severe depression on the