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Impact of Depression on Work Productivity and Its Improvement after Outpatient Treatment with Antidepressants

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ABSTRACT

Objective: Depressive disorders influence socioeconomic burden at both the individual and organizational levels. This study estimates the lost productive time (LPT) and its resulting cost among workers with major depressive disorder (MDD) compared with a comparison group. It also estimates the change in productivity after 8 weeks of outpatient psychiatric treatment with antidepressants. **Methods:** Working patients diagnosed with MDD without other major physical or mental disorders were recruited (n = 102), along with age- and sex-matched healthy controls from the Seoul Metropolitan area (n = 91). The World Health Organization's Health and Work Performance Questionnaire and the Hamilton Rating Scale for Depression were utilized to measure productivity and severity of depression, respectively, at baseline and at 8 weeks of treatment. **Results:** The LPT from absenteeism and presenteeism (reduced performance while present at work) was significantly higher among the MDD group. Workers with MDD averaged costs due to LPT at 33.4% of their average annual salary, whereas the comparison group averaged costs of 2.5% of annual salary. After 8 weeks of treatment, absenteeism and clinical symptoms of depression were significantly reduced and associated with significant improvement in self-rated job performance (31.8%) or cost savings of $7508 per employee per year. **Conclusions:** We confirmed that significant productivity loss arises from MDD and that this loss can be reduced with psychiatric intervention after a time period as short as 8 weeks. Mental health professionals should work with employers to devise a cost-effective system to provide workers with accessible quality care.

Keywords: cost, depression, lost productive time, productivity, presenteeism.

Introduction

Depression is one of the most prevalent health problems in the workplace. A recent report from the Office of Applied Studies of Substance Abuse and Mental Health Services Administration showed that 7.0% of adult full-time workers (10.1% for women vs. 4.7% for men) experienced a major depressive episode (MDE) during the past year [1]. Among workers in the United States, 6.4% have been reported to meet the criteria for major depressive disorder (MDD) [2], and 4.6% of working Canadians have been reported to meet criteria for an MDE during the past year [3].

Depressive disorders have been found to cause the largest disease burden (expressed as disability-adjusted life years, a standard burden of disease measure) in the working population of the United States [4]. Due to the early age of onset and the chronic course of illness, depressive disorders have a large influence on work productivity [5]. Three major cost categories are used to estimate the economic burden of depression: direct costs (e.g., medical expenses), indirect costs (e.g., costs associated with depression in the workplace like reduced productivity), and mortality costs arising from depression-related suicides [4]. Among these three categories, indirect costs are estimated to be as high as or even higher than direct costs in mental health problems, including depression [6,7]. The economic burden of depression in 2000 in the United States was estimated at $83.1 billion, which consisted of $51.5 billion (62%) in indirect workplace costs, $26.1 billion (31%) in indirect medical costs, and $5.4 billion (7%) in suicide-related mortality costs [4].

Regarding indirect costs, many studies use the concept of lost productive time (LPT), which consists of "absenteeism" and "presenteeism." Absenteeism refers to the LPT caused by hours or days missed from work (e.g., tardiness, leaving work early, sick leave) [7]. Presenteeism is defined as the estimated LPT caused by reduced work performance while at work [8], which can be brought on by decreased concentration, reduced motiva-

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tion, fatigue, or errors in decision making. Presenteeism is usually measured through surveys from employees, with measurements varying in complexity from single items assessing time spent at work while unwell, to multiple items incorporating employee perceptions of productivity as related to their own previous performance or to that of their colleagues [9,10]. For depressive disorders, LPT from presenteeism has been shown to exceed LPT from absenteeism. One study found that 81% of the LPT among workers with depression was due to presenteeism, whereas another study estimated the indirect costs of depression at $32.5 billion—$24 billion due to presenteeism and $8.5 billion due to absenteeism [7,11].

Recently, an increasing number of clinical trials focusing on the treatment of MDD have shown favorable effects of intervention and have suggested preferable return-on-investment (ROI) results [12–15]. However, poor awareness and social stigma affect workers' access to quality care for MDD [16]. Thus, understanding the magnitude of lost productivity related to MDD, and the benefits of treatment in reducing LPT, will help to guide decisions about the allocation of additional resources or the provision of accessible care to this population.

In this research, we estimated the loss of work productivity among employees with MDD who visited psychiatrists in Seoul, Korea, using the World Health Organization's Health and Work Performance Questionnaire (HPQ) [10]. We compared their LPT with the LPT of a sample of healthy working controls, and we measured the amount of recovered productivity after 8 weeks of antidepressant treatment in an outpatient psychiatric setting.

Methods

Subjects

A total of 106 employees aged 20 to 60 years were screened from four outpatient psychiatric clinics located in highly industrialized districts in Seoul, Korea, using consecutive sampling technique. Those patients who met the *Diagnostic and Statistical Manual of Mental Disorders, 4th edition* (DSM-IV), diagnostic criteria for MDD using the Korean version of Structured Clinical Interview for DSM disorders [17], were eligible for inclusion. Patients with MDD who were already taking antidepressant medications were excluded. Patients with a history of MDD but not currently taking a psychiatric medication, and displaying symptoms of a current depressive episode were included. Four patients with medicosurgical disease or other psychiatric disorders other than MDD were excluded. A total of 102 subjects with MDD were then enrolled in the study, with informed consent provided.

For the comparison group, age- and sex-matched healthy employees were recruited from the same region through advertising in local newspapers and on websites. Approximately 150 volunteers were initially screened using the Korean version of Structured Clinical Interview for DSM disorders and, among them, a group of 100 individuals with a similar age and sex distribution who did not have significant medical of psychiatric illnesses were recruited. Severe job stress and impending life events including job loss can confound the results of productivity measures, thus, nine healthy volunteers were excluded from the data analysis. Thus, 91 subjects completed the questionnaires and were enrolled as the comparison group. Each subject provided informed consent for his or her participation in this study after it had been fully explained. The institutional review board of Inje University Seoul Paik Hospital approved this study.

Treatment and assessment

The entire study population was assessed at baseline, and the MDD group was also assessed at study weeks 4 and 8. Out of the 102 subjects in the MDD group, 35 patients dropped out after baseline assessment and 15 patients dropped out between weeks 4 and 8. Fifty-two subjects completed assessments at baseline and week 8 as well as after 8 weeks of treatment for MDD with antidepressants and 20 to 30 minutes of supportive psychotherapy. They were included in a complete analysis to measure changes after 8 weeks of treatment. Among them, 10 patients missed the week 4 visit, and, thus, we performed a complete analysis for 42 subjects to compare changes among weeks 0, 4, and 8.

Measurement of health and productivity

We applied the Korean version of the HPQ for measurement of productivity. The Korean version of the HPQ was developed using conventional techniques of translation and back-translation by bilingual psychiatrists, maintaining equivalence with the permission of the original author. There are other available instruments for estimating absenteeism and presenteeism [18,19], but they are limited by their complexity and narrow scope [20,21].

The HPQ was developed to avoid these limitations and has been reported as valid and reliable [10]. It consists of three major parts (questions about health, productive time, and demographics), and most of the questions address the previous 4-week pe-

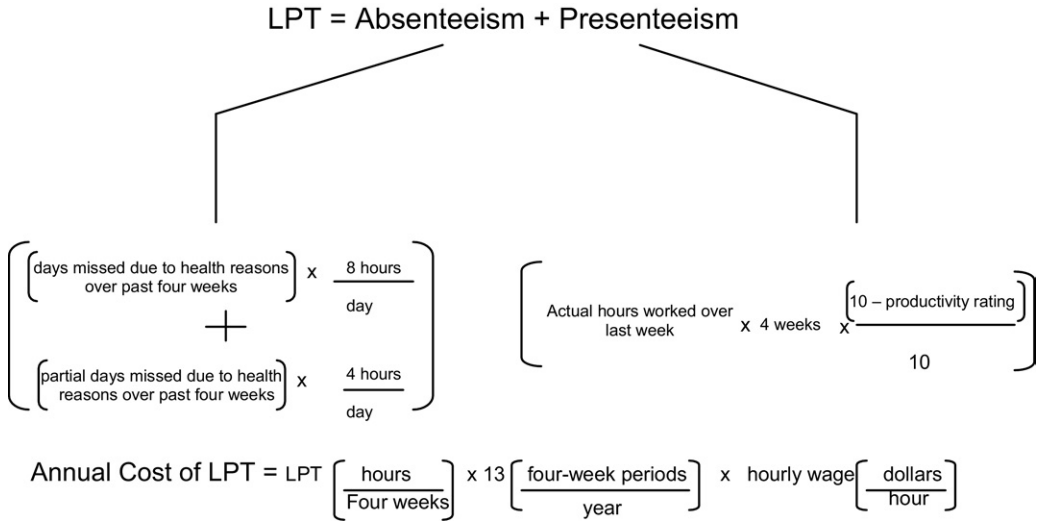

Fig. 1 – Calculation of the cost of lost productive time due to absenteeism and presenteeism.