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Research report

Impairment of work productivity in panic disorder patients

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ABSTRACT

Background: Panic disorder (PD) has a critical impact on productivity at the workplace. This study aimed to identify the lost productivity time (LPT) for patients with PD. It also assessed change in LPT for patients with PD after 12 weeks of treatment with Selective Serotonin Reuptake Inhibitors (SSRIs), compared with healthy controls.
Methods: Working patients diagnosed with PD without other major medical or psychiatric illness were enrolled at outpatient psychiatric clinics ($N=108$). Age and sex-matched healthy controls were recruited through advertisement ($N=108$). Health and productivity, PD symptoms, and depressive symptoms were assessed using the Korean version of the World Health Organization's Health and Work Performance Questionnaire (HPQ), the Panic Disorder Severity Scale (PDSS), and the Hamilton Rating Scales for Depression (HAM-D), respectively at baseline, week 4, and week 12.
Results: At baseline, the PD group showed significantly higher LPT compared to the control group (103.02 vs. 47.28 h in the past 4 weeks). After 12 weeks of treatment, the PD group displayed significant clinical improvement as well as improved productivity with a marked reduction in LPT. Among the patients who completed the treatment, LPT due to PD was reduced from 104.38 to 55.15 h in the past 4 weeks.
Limitations: There may be selection bias due to case-control study design.
Conclusions: These data suggest that, after the treatment, there was significant improvement in clinical symptoms, and that productivity loss due to PD was almost entirely recovered to the level of healthy controls after 12 weeks of psychiatric outpatient treatment.

1. Introduction

Panic disorder (PD) is a prevalent anxiety disorder affecting 1–8% of the U.S. population with onset typically occurring in late adolescence to the mid-30s. It is characterized by recurrent, sudden anxiety attacks that result in worry, fear, or concern that these attacks will happen again, or otherwise negatively impact life in general. Additionally, many patients have coexisting anxiety or depressive disorders. These conditions correlate with poor quality of life and poor functional outcomes, including high rates of welfare and disability (27%) (Greenberg et al., 1999).

PD symptoms have also been found to have an important impact on medical and non-medical indices at the societal level. Due to comorbidities, patients with PD tend to use more health care services (Katon, 2006). A previous retrospective study suggested that anxiety disorders are associated with significant medical and productivity costs (Marciniak et al., 2004). Another study found that those with psychiatric illnesses, including PD, earned $16,306 less than average in the US population (Kessler et al., 2008). However, PD has been addressed less fully in the literature than other psychiatric disorders such as depression and generalized anxiety disorder.

Recently, some studies have shown favorable results in treating psychiatric conditions at the workplace leading improved productivity (Kessler et al., 2003; Woo et al. 2011). However, no prospective study measuring presenteeism and absenteeism for workers with PD has been published to date. Standard treatments for PD have been shown to reduce the severity of symptoms; however, links between these treatments and workplace productivity have not yet been established.

While it is widely accepted that mental health critically affects the workplace, research is still being done to determine the best methods of measuring the effect. The calculation of lost productivity time (LPT) seems to be a promising method for describing

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how psychiatric illness affects workplace productivity (Kessler et al., 2003).

In this paper, we aimed to measure the LPT for working patients with PD using the World Health Organization's Health and Work Performance Questionnaire (HPQ); this would provide useful information for understanding the relative costs of different diseases to employers. Additionally, we provided 12 weeks of treatment with Selective Serotonin Reuptake Inhibitors (SSRIs) and assessed post-treatment LPT via the HPQ, and compared LPT for those with PD to LPT in a sample of healthy working controls.

2. Methods

2.1. Subjects

A total of 120 consecutive patients seeking treatment for the first time at outpatient psychiatric clinics at three university hospitals in Seoul, Korea were recruited as study subjects. They were screened for PD, using the Korean version of the Structured Clinical Interview for DSM disorders (SCID). Patients aged 20–50 years who met the DSM-IV criteria for PD and were working at that time were included. Those with a history of other major medical or psychiatric illness (aside from PD or PD with major depressive disorder) were excluded. A total of 108 subjects completed questionnaires and were enrolled as subjects in the PD group.

A total of 108 age and sex-matched healthy subjects from the same region were recruited through newspaper advertisement and websites to serve as controls. They were screened for PD using SCID as well as for other medical and psychiatric illnesses, and enrolled if found to have none of the above. All participants signed informed consent. The data were gathered during a two-year period from March 2007 to February 2009. The Institutional Review Board (IRB) of Inje University, Seoul Paik Hospital approved this study.

2.2. Intervention

A total of 40 PD patients completed 12 weeks of treatment based on treatment guidelines from the National Institute for Health and Clinical Excellence (NICE) in the United Kingdom (NICE, 2007). Psychotherapy is restricted to supportive psychotherapy, which is usually provided in the outpatient clinic briefly; formal cognitive behavioral therapy (CBT) was not provided. As a first line pharmacotherapeutic agent, either paroxetine CR (Paxil CR®) or escitalopram (Lexapro®) was chosen, based on the side effect profile, and maintained for 12 weeks. The starting dosage of paroxetine CR was 12.5 mg/day and was increased to 25 mg/day within 2 weeks. The starting dosage of escitalopram was 10 mg/day and was increased to 20 mg/day within 2 weeks. After 2 weeks of pharmacotherapy, flexible dosage titration was performed by clinical decision of the experienced psychiatrists. The use of non-SSRI antidepressants were not permitted during the study. Because all the patients were employed and hoped to reduce their anxiety level to maintain their jobs, short-term use of benzodiazepines (less than 1 mg/day equivalent dose of lorazepam, for up to one month) was allowed for 31 patients. Other anxiolytics such as buspirone (Buspar®) and tandospirone (Sadiel®) were also used for five patients during the first month of treatment. Only the as needed use of zolpidem (Stilnox®) was allowed for severe insomnia, but not for more than three nights per week and not on the night before a clinic visit.

2.3. Assessment

Both groups were assessed with the following measures at baseline; the PD group was also assessed after 4 and 12 weeks of treatment to monitor potential effects of treatment.

The Panic Disorder Severity Scale (PDSS) was administered to each study subject to assess the severity of symptoms and the Hamilton Rating Scale for Depression (HAM-D) was administered to each member of the PD group and the control group to assess depressive symptoms, as anxiety and depressive disorders are often co-morbid (Woo et al. 2011).

The Korean version of the HPQ was administered to each study subject to measure lost workplace productive time, absenteeism and presenteeism (Woo et al. 2011). HPQ was developed to measure costs of health problems in the workplace based on self-report questionnaires (Kessler et al., 2003), and it consists of questions about demographics, health, and productive time mostly during the previous 4 week period (Woo et al. 2011).

Absenteeism is measured by the sum of hours and days missed due to health-related reasons during the previous 4 weeks. The number of full days missed are multiplied by eight hours per day, and the partial days missed from work are multiplied by 4 h per day. Absenteeism is thus expressed as hours missed per 4-week period. The annual cost of absenteeism is calculated by multiplying hourly wage by total work-limited hours during 4 weeks and projecting to a year by multiplying the 4 weeks total by 13.

Presenteeism measures actual performance level compared to potential performance. LPT due to presenteeism quantifies the lost productivity while at work by multiplying the actual hours worked by the reduced performance level. The annual cost of presenteeism is estimated by the same method as the annual cost of LPT due to absenteeism. Total costs of LPT are the sum of the cost of absenteeism and presenteeism (Fig. 1). The cost of LPT due to PD can be estimated as the difference of the cost of LPT between the PD group and the control; the control group is considered to be a reference in this study.

2.4. Statistical analysis

We performed chi-squared and t-tests to compare demographic data, the HPQ, and the HAM-D between the PD group and the matched control group. Similar chi-squared and paired t-test analyses were performed to compare the PD group at baseline and after treatment. All significance levels reported were two-tailed and the criterion for statistical significance was $p \leq 0.05$. SPSS ver. 12.0 was used for the statistical analysis.

3. Results

The comparison between the employees with PD and the healthy control group is shown in Table 1. Only marital status and duration of employment showed significant differences between two groups.

The results of HPQ measures for the PD and control groups are shown in Table 2. The difference in days absent due to health problems in the past 4 weeks was statistically significant, with the PD group reporting 1.92 days missed compared to the control group reporting 0.07 missed days ($p < 0.001$). The number of partially missed days due to health problems was also significantly different, 2.75 days in the PD group and 0.16 in the control group ($p < 0.001$). Total actual work hours in the past 4 weeks were 162.15 in the PD group and 170.45 in the control group; the difference was not statistically significant ($p = 0.291$). The PD group reported working significantly fewer hours per week (38.6 vs. 43.4, $p = 0.025$). Self-rated job performance during the past