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Comparative study of cost of care of outpatients with bipolar disorder and schizophrenia

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ABSTRACT

Aim: To assess and compare the average annual the cost of illness of outpatients with bipolar disorder and schizophrenia.
Methods: Cost of illness in 75 out-patients with bipolar disorder and 53 out-patients with schizophrenia was assessed over a 9-month period by using bottom-up approach. The cost of 9 months was annualized by dividing the 9 months cost by 3 and then multiplying the obtained figure with 4.
Results: Total average annual costs of care of bipolar disorder was Indian rupees 32,759 (US $ 655.18) and that of schizophrenia was Indian rupees 48,059 (US $ 961.18) and there was no significant difference between the two groups. In both the groups, indirect costs (bipolar disorder—64.0%; Schizophrenia—77.6%) were higher than direct costs (bipolar disorder—36%; Schizophrenia—22.4%). Cost of medications was high. Patient and their families bore the main brunt of financial burden (95.4–96% of the total cost). In Bipolar disorder total treatment costs were significantly higher in those who had lower level of functioning. In bipolar disorder group number of visits to the hospital correlated with total cost, indirect cost and provider's cost, whereas in schizophrenia group total number of visits correlated with provider's cost only. Only a small proportion (13.7%) of the total cost of bipolar disorder was predicted by presence or absence of alcohol dependence and number of visits. In the schizophrenia group, only positive symptom score as per the rating on PANSS appeared as a significant predictor of total cost, explaining 15.6% of the total cost.
Conclusion: Costs for outpatients with bipolar disorder are similar to the cost of outpatients with schizophrenia. Costs are higher in patients of bipolar disorder with lower level of functioning. Findings of the study suggests that reducing the number of visits to the hospital by providing care at the doorsteps, focusing on reduction of substance use and improving the level of functioning of the patients can reduce the cost of care of bipolar disorder.

Introduction

Bipolar disorder is a chronic affective disorder with a lifetime prevalence of 4.5–4.8% (Merikangas et al., 2007, 2011). Due to its significant impact on the patient, family and society it also leads to significant economic burden (Kleinman et al., 2003). Therefore, measuring the cost of care imposed by bipolar disorder on the family and society has been an important endeavour for many researchers. The various components of cost of care include direct cost, i.e. the expenditure on treatment, indirect cost consisting of the monetary value of lost productivity of patients/caregivers, and intangible cost in terms of stress, stigma, etc. borne by those affected (Rice et al., 1992). *Direct costs* are the actual monetary expenditure related to treating an illness or disorder, i.e. it includes costs associated with hospitalization, outpatient services, nursing care, drugs, and services of a range of professionals, residential care, day care, domiciliary care and rehabilitation. It also includes provider's cost which is borne by the hospital for providing medical facilities (Shah and Jenkins, 2000). *Indirect costs* concern the monetary value of lost output due to reduced or lost productivity of patients and caregivers caused by illness, disability or injury of patients, family costs in looking after a sick relative, and cost of various allowances. Some authors also include costs associated with public awareness campaigns, crime control and health insurance, and losses due to premature death (Shah and Jenkins, 2000; Wilde and Whittington, 1995).

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Most of the studies which have reported the cost of care of bipolar disorders are from the developed countries. In terms of annual direct cost per patient with bipolar disorder the costs have been estimated to vary from 3308 to 13,402 US dollars (Access Economics, 2003; Stender et al., 2002; Li et al., 2002; Stensland et al., 2007; Bryant-Comstock et al., 2002; Knoth et al., 2004; Peele et al., 2003; Johnstone et al., 2000), depending on the year and method of estimation. Studies have constantly shown that drug cost form a minor proportion of the total cost, varying from 0.13 to 1.2% of the total cost, depending on the country in which these studies have been carried out (Kleinman et al., 2003; Wyatt and Henter, 1995; Begley et al., 2001) and 2% of the direct cost (Kleinman et al., 2003).

Studies which have compared direct and indirect costs have come up with mixed results. There is a wide variation in percentage attributed to each, depending on the type of study. Direct costs have ranged from17% to 65% of the total cost, and indirect costs from 35% to 83% (Wyatt and Henter, 1995; Begley et al., 2001; Dilsaver, 2011; Rice and Miller, 1993; Greenberg et al., 1993). Studies have also compared cost of illness of bipolar disorder with physical illnesses and other psychiatric disorders and report that cost of illness of bipolar disorder is more than any of the other disorders (Simon and Unutzer, 1999; Bryant-Comstock et al., 2002). Williams et al. (2011) compared the direct cost of bipolar disorder with patients with diagnoses of diabetes mellitus, coronary artery disease, or asthma. They reported that patients with bipolar disorder had higher adjusted mean per member per month cost than any other comparison group (also included patients with depression) except for those with both diabetes and coronary artery disease.

There are few studies from developing countries including India which have evaluated the cost of bipolar disorder. These included comparative study of the cost of illness of schizophrenia and bipolar disorder (Deshpande, 2005) and a comparative study of the cost of illness of bipolar disorder, schizophrenia and major depressive disorder (Thakral et al., 2011). In general these studies suggest that the cost of medications forms the major bulk of the total cost. However, these studies have not evaluated the cost of care comprehensively. One of these studies mainly focused on the cost of consultations from psychiatric and non-psychiatric services, travel cost and cost of medications only (Deshpande, 2005). In another study, although the authors claimed to have estimated the direct, indirect and intangible cost, but the cost figures were provided only for the direct cost (Thakral et al., 2011).

The direct cost of schizophrenia in studies from the Western countries per patient has varied from 3560 US dollars to 39,000 US dollars per patient per year (Davies and Drummond, 1993; Grover et al., 2005a; Rund & Ruud, 1999). As with bipolar disorder, inpatient care has been found to be the largest cost driver for direct costs, suggesting that relapse prevention is the key to reduce health care costs. Studies have constantly shown that drug costs forms a rather small proportion of the total cost, varying from 2% to 5.6% of the total cost (Grover et al., 2005a; Guest et al., 1996; Rouillon et al., 1997) and 3–5% of the direct cost (Davies and Drummond, 1994). Studies comparing direct and indirect costs have come up with mixed results. There is a wide variation in percentage attributed to each, depending on the type of study. Direct costs have ranged from 13% to 53% of the total cost, and indirect costs from 47% to 87% (Grover et al., 2005a).

Studies from India suggest that major bulk of cost of schizophrenia is formed by indirect cost and direct cost forms only one third of the total cost (Grover et al., 2005b). Further the studies suggest that over the last one decade the cost of care of schizophrenia has doubled (Somaiya et al., 2014).

On the whole, different authors have claimed that either the proportion of direct costs and indirect costs are nearly equal (Rupp and Keith, 1993), or that indirect costs are three to four times higher (Davies and Drummond, 1994; Andrews et al., 1985; Gunderson and Mosher, 1975).

In this background the present study aimed to compare the average annual the cost of illness of outpatients with bipolar disorder and schizophrenia. Additionally an attempt was made to study the influence of certain sociodemographic variables and clinical variables on cost of care.

Methodology

Approval and ethical issues

The study was approved by the Ethics review Committee of the Institute and all the participants were recruited after obtaining the written informed consent. The data for this study was collected during the period of July 2010 to June 2011. The data of the schizophrenia group presented in this study as a comparator group has also been published in a previous study by us in which we compared the trends of cost of schizophrenia over a decade (Somaiya et al., 2014).

Setting

The study was carried out in the Department of Psychiatry of a large multispecialty tertiary-care hospital, the Postgraduate Institute of Medical Education and Research, located in Chandigarh (India). In our set-up all the patients are assessed through a detailed semistructured interview.

It is a Central government funded Institute, in which health care is provided at a subsidized rate. To seek psychiatric consultation, a nominal fee (10 rupees) is charged at the first visit and subsequent visits are free of charges, if these fall in the same half of the year (i.e., the patients have to make payment of rupee 10 for Jan–June and then rupees 10 from July to Dec). Dispensary of the hospital provides few drugs free of cost and for the same patients have to visit the hospital monthly for the refills. The psychotropics available free of cost includes lithium, chlorpromazine, trifluoperazine and imipramine. However, if a patient is prescribed medication other than these, they have to pay from their pocket. In terms of cost of medications, in general most of the psychotropics are easily available and are relatively cheaper compared to other developing countries (Cameron et al., 2009; Suleiman et al., 1997). For the inpatient care, patients have to pay about 185 rupees per day which is inclusive of diet for the patient for the day and there are no separate charges for the consultation. However, routine investigations are charged nominally and other investigations like brain scans are also highly subsidized. Most of the patients with bipolar disorder and schizophrenia are treated on outpatient basis. In case a patient cannot afford treatment, than hospital bears the cost of inpatient care and investigations, however, still patients have to pay for their medications from the pocket. On an average 160–200 patients visit the psychiatry outpatient services every day.

Cost estimation in this study was loosely based on the prevalence-based, bottom-up approach. Indirect costs were calculated on the basis of the human capital approach principle. However, future mortality costs were not calculated because of the difficulty in obtaining requisite data. A methodology similar to that adopted by Chisholm et al. (2008) in their cost-outcome study in India and Pakistan and Grover et al. (2005b) in their cost of care of schizophrenia study. Though costs were primarily assessed based on a survey of patients, data was also obtained from hospital records and statistics to calculate the provider's cost.