COST OF DEPRESSIVE DISORDERS IN INDOOR PATIENTS

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ABSTRACT

Objective: *To estimate the direct and indirect cost of depressive disorders in indoor patients.*

Methodology: *This hospital based descriptive study was carried out on thirty patients admitted consecutively in department of psychiatry Jinnah Postgraduate Medical Center Karachi from January to July 2000. International Classification of Disease-10 diagnostic criteria for depressive disorders were used to identify the patients. Cost proforma was devised to calculate direct and indirect cost. The cost of hospital stay per day was calculated by using opportunity costs model.*

Results: *There were 9 (30%) male and 21 (70%) female patients. Majority of the patients were in their twenties (n=11, 36.67%) and thirties (n=9, 30%). There were 24 (80.02%) married and 6 (19.98%) unmarried patients. A total of 20 (66.66%) were jobless and 10 (33.33%) were having a job. Most of the patients were suffering from moderate depressive disorder and recurrent depressive disorder (n=11, 36.67% and n=10, 33.33%). The overall cost of all the patients was Rs. 472,542 with Rs.73,026 (15%) in direct and Rs. 399,516 (85%) in indirect costs with a ratio of 1:5.5.*

Conclusion: *The diagnosis of moderate depressive disorder was the commonest in the sample. The indirect cost of depressive disorder in indoor patients was 5.5 times more than the direct cost.*

Key word: *Economics, Depression, Disability, Cost, Burden*

INTRODUCTION

Depression has a profound economic burden both on individuals who are suffering from it and on society as a whole. Three major factors contribute towards the economic burden of depression, i.e., high prevalence of the disease; disability of the patient due to the disease; and chronic lifelong characteristic and nature of the illness. Researchers have pointed out both direct and indirect costs to be involved with the disorder. From a broad perspective of health economics, '**cost**' is defined as "*the value of what is given up to provide care*"[1]. Direct costing is the cost of consultation, investigations, money spent from pocket and transportation to hospital while Indirect costing includes loss of productivity of patient due to illness, disability, suicide, loss of productivity of family members who are taking care of the patient, insurance payments, etc[2].

World Bank in collaboration with World Health Organization published a World development report 1993 using the theme "Investing in Health"[3]. They were of the opinion that within non-communicable diseases, psychiatric and neurological illnesses such as depression, alcohol dependence and epilepsy, came second only to cardiovascular diseases as the major cause of disability across both developed and developing countries[3]. Moreover, depression ranked as fifth priority for health intervention in women aged 15-44 years and the 7th in men in the top ten list produced from the full range of communicable and non communicable disorders[3].

Although researches estimating indirect cost are difficult because the estimation involves many aspects but its importance is stated to be manifold higher than direct cost as it imposes more burden on the patient, his family and society. Society shares this economic burden in two ways. On one hand, the Government revenue decreases due to tax losses because of the patients' illness. And to overcome this decrement in revenue Government puts more taxes on other earnings. On the other hand depressed patient, whose earning are reduced by their illness must be financially supported by the society through transfer payments, social insurance, Zakat etc [4, 5].

Angst who followed up his patients form 5 to 21 years reports that 13% of these unipolar depressed patients manifested a chronic, unremitting course[6]. Wells KB et al reported that the disability associated with depression was more significant than the disability associated with Hypertension, Diabetics, Arthritis, Lung diseases and gastrointestinal diseases[7]. This study showed that depression is more likely to be disabling and limiting the physical activity of its victims as compared to other somatic illness. The chronic and disabling nature of depression draws the attention of researchers to its economic aspects. Ansseace estimated that more than 40 billion Belgian Francs were annually spent on depression in Belgium and indirect costs were 6 times higher than direct costs[8].

Due to enormous pressure from rising health care costs, a large number of studies on economic aspects have been published with innovative methodological approaches but still the data is scarce and Pakistan lacks completely in this respect. This study to estimate the direct and indirect cost of depressive disorders in indoor patients is justifiably the first of its kind and may act as a prime mover for future researches in this area.

METHODOLOGY

This study was conducted at Psychiatry Department, Jinnah Postgraduate Medical Centre Karachi. Thirty consecutive cases fulfilling the diagnostic criteria of depressive disorder in International Classification of Disease -10 regardless of sex and age, admitted during January to July 2000 were enrolled[9]. Patients diagnosed with depressive disorder but having any other co morbid illness were excluded from the study to focus only on the cost of depression. For calculating costs and accumulating losses incurred by patient during hospitalization (direct and indirect costs), a cost proforma was devised and daily interview with each patient and their attendant was conducted. Per day hospital stay was calculated by using opportunity cost model.

RESULTS

Out of 30 patients, 9 (30%) were males and 21 (70%) females with a ratio of 1: 2.3. The breakup of age shows that most patients were in their twenties [11 (36.67%)] and thirties [9 (30%)]. There were 24 (80.02%) married and 6 (19.98%) unmarried patients. Regarding the occupation, 20 (66.66%) were jobless and 10 (33.33%) were having a job. Sixteen (53.33%) patients came from District East Karachi while 9 (30%) from District South Karachi, 1 (3.33%) from District Central Karachi and 2 (6.67%) each from Malir District and out side of Karachi respectively (Table 1).

There were 11 (36.33%) patients suffering from moderate depressive disorder, 10 (33.33%) had recurrent depressive disorder, 8 (26.66%) were diagnosed as severe depressive episode with psychotic symptoms and 1 (3.33%) with a severe depressive episode without psychotic symptoms (Table 2).

The average per day cost was Rs. 1304.04 for patients with a hospital stay of less than 11

Table 1: Demographic Characteristics of the Sample

	Male		Female		Total	
Age Range	**N**	**%**	**N**	**%**	**N**	**%**
< 20	1	3.33	4	13.33	5	16.67
20-29	7	23.33	4	13.33	11	36.67
30-39	0	0.00	9	30.00	9	30.00
40-49	1	3.33	3	10.00	4	13.33
≥ 50	0	0.00	1	3.33	1	3.33
Total	9	30.00	21	70.00	30	100.00
Marital Status						
Married	7	23.33	17	56.67	24	80.00
Unmarried	2	6.67	4	13.33	6	20.00
Total	9	70.00	21	30.00	30	100.00
Location						
Karachi East	1	3.33	15	50.00	16	53.33
Karachi South	6	20.00	3	10.00	9	30.00
Malir	0	0.00	2	6.67	2	6.67
Karachi Central	0	0.00	1	3.33	1	3.33
Other Cities	2	6.67	0	0.00	2	6.67
Total	9	30.00	21	70.00	30	100.00

Table 2: Diagnosis according to International Classification of Disease - 10

Diagnosis	Male		Female		Total	
	N	%	N	%	N	%
Moderate Depressive Disorder (F32.1)	3	10.00	8	26.67	11	36.67
Recurrent Depressive Disorder (F33)	2	6.67	8	26.67	10	33.33
Severe Depressive Episode with Psychotic Symptoms (F32.3)	3	10.00	5	16.67	8	26.67
Severe Depressive Episode without Psychotic Symptoms (F32.2)	1	3.33	0	0.00	1	3.33
Total	9	30.00	21	70.00	30	100.00

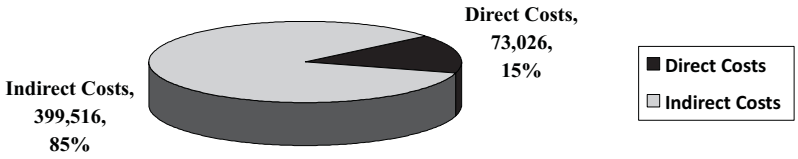
Table 3: Average per day cost of the patients

No. of Patients	No. of Days Admitted	Average Direct Cost/day(PKR)	Average Indirect Cost/day (PKR)	Average Total Cost/day (PKR)
19	<11	219.67	1088.67	1304.04
5	11-20	140.69	924.82	1063.92
6	>20	232.01	1102.50	1295.85
Total		5,808.65	30,838.86	36,647.51

Table 4: Total Cost during the indoor stay

No. of Patients	No. of Days Admitted	Direct Cost (PKR)	Indirect Cost (PKR)	Total Cost (PKR)
19	<11	1661.73	8195.78	9847.52
5	11-20	2104.8	13836	15940.8
6	>20	5154.83	29134.33	34289.16
Total		73,026	399,516	472,542

Graph 1: Direct vs. Indirect Cost of indoor stay of the patients



days while it was Rs. 1063.92 and Rs. 1295.85 for patients that stayed for 11-20 days and more than 20 days respectively (Table 3). The overall cost of all the 30 patients was Rs. 472,542 and out of these Rs.73, 026 (15%) were spent in the direct and Rs. 399,516 (85%) in the indirect costs, respectively. The ratio between direct and indirect cost thus was 1:5.5 (Table 4 and Graph 1). The group of patients that stayed in the hospital for less than 11 days spent a total of Rs. 9847.52 while Rs. 15940.8 and Rs. 34289.16 were spent by patients that stayed for 11-20 days and more than 20 days in the hospital respectively. The patient who had the maximum stay in the hospital i.e., 33 days spent Rs. 57,231.

DISCUSSION

The study reports more female patients suffering from depressive disorder and this ratio correlates with the findings of previous local and international studies although the psychiatry department has same number of beds allocated for male and female patients[10-13]. The frequent occurring age group and marital status are also consistent with the findings of other national and international studies[13-19]. The rising frequency of depression in women and that too in married women will therefore further increase the cost of depression of the nation particularly in terms of indirect costs, as the productivity of the family is decreased manifolds. The findings regarding the occupational status are consistent with local litrature[14] but the non working group mostly consisting of housewives is also involved in the societal productivity with their specific roles.

Majority of the patients were in two main diagnostic groups i.e., moderate depressive disorder and recurrent depressive disorder making it compatible with international literature[20].

Study shows that longer stay in hospital was co-related with high expenses both in terms of direct and indirect costs. Even the average patient stay of our sample was 14 days as compared to the average stay of 8 days in medical ward of same center. It is obvious that the economic burden on the patient will be multiplies with the increase in the bed stay.

Regarding the comparison of our results with previous international studies on the ratio between direct and indirect costs have certain limitations. Researchers of these studies have calculated the cost of depressive disorder for the whole country by using different methodologies and different diagnostic criteria. Moreover the difference between the value of currency, gross national product, gross domestic product and the year of study further contribute in the limitation for comparison because of yearly value changes with the index numbers e.g., for US, in 1980, 16.3 billion $ (2.1 billion $ direct and 14.1 billion $ indirect cost) and in 1993 it was 47.3 billion $ (12.4 billion $ direct and 31.3 billion $ indirect cost)[21, 22]. Similar studies from UK reported £417 million annual expenditure with more in the indirect cost than the direct one[23, 24]. Further, studies on costing of depression mostly centred on the comparisons of different causes of antidepressants so there are only few studies in literature who have addressed to the main theme of economics of depression in terms of direct and indirect costs. The ratio of direct to indirect costs in our study proved to be in accordance with results of other studies in which the ratio between direct and indirect costs 1:7, 1:4.5 and 1:4 respectively[21-23].

The limitation of the study is its focus which is only on the costs incurred during hospitalization but it has been recognized, however, that inclusion of other heads of indirect costs would multiply the costs further. Since, estimating indirect cost is difficult, so we have not focused on various aspects of indirect costs like the loss of education of kids; loss of the leisure activity; loss of quality of life; absence from work; unemployment; social morbidity and transfer payment etc. Thus this invisibility of indirect cost may portray an underestimated picture of the burden of illness. The rising trend of estimation of indirect costs needs to be continued and future researches are warranted in this area.

CONCLUSION

The diagnosis of moderate depressive disorder was the commonest in the sample. The indirect cost of depressive disorder in indoor patients was 5.5 times more than the directcost i.e, Rs. 399,516 as compared to Rs. 73,026.

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