

Health Service Utilization Costs for Borderline Personality Disorder Patients Treated With Psychoanalytically Oriented Partial Hospitalization Versus General Psychiatric Care

Anthony Bateman, M.A., F.R.C.Psych.
Peter Fonagy, Ph.D., F.B.A.

Objective: The authors assessed health care costs associated with psychoanalytically oriented partial hospital treatment for borderline personality disorder compared with treatment as usual within general psychiatric services.

Method: Health care utilization of all borderline personality disorder patients who participated in a previous trial of partial hospital treatment compared with treatment as usual was assessed by using information from case notes and service provid-

ers. Costs were compared for the 6 months before treatment, 18 months of treatment, and an 18-month follow-up period.

Results: There were no cost differences between the groups during pretreatment or treatment. Costs of partial hospital treatment were offset by less psychiatric inpatient care and reduced emergency room treatment. The trend for costs to decrease in the partial hospitalization group during the follow-up period was not apparent in the treatment-as-usual group.

Conclusions: Specialist partial hospital treatment for borderline personality disorder is no more expensive than treatment as usual and shows considerable cost savings after treatment.

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Patients with borderline personality disorder place a high demand on health and social services (1). In our recent randomized controlled trial comparing partial hospital treatment of borderline personality disorder with treatment as usual, we found a favorable outcome on symptomatic and clinical measures for the partial hospital treatment group both at the end of treatment (2) and after 18 months of follow up (3). This article reports a cost analysis of the data from the trial, focusing on the direct costs

of partial hospital treatment compared with treatment as usual and on subsequent use of services over 18 months for all patients.

Method

The design of the study, the sample characteristics and criteria used for borderline personality disorder, and the written informed consent obtained after explanation of the procedure have been detailed in an earlier publication (2). For this report, infor-

TABLE 1. Estimated Annual Health Care Utilization Costs for Borderline Personality Disorder Patients Receiving Either Psychoanalytically Oriented Partial Hospitalization (N=22) or General Psychiatric Care (N=19)

Service	6 Months Before Treatment						18 Months of Treatment					
	Cost (U.S. dollars)				Analysis		Cost (U.S. dollars)				Analysis	
	Partial Hospitalization Group		General Care Group				Partial Hospitalization Group		General Care Group			
	Mean	SD	Mean	SD			Mean	SD	Mean	SD		
Psychiatric care	39,465	23,745	47,428	24,097	183.0	−1.2	26,204	7,720	26,661	12,598	5.0	−0.2
Inpatient	24,252	22,116	27,749	21,707	184.0	−0.7	2,344	2,897	7,948	4,317	71.0	−3.6***
Outpatient	1,865	1,292	1,954	1,358	197.0	−0.3	148	401	1,992	856	11.0	−5.5***
Partial hospital	13,347	10,638	17,724	12,783	166.5	−1.1	23,712	8,659	16,721	12,298	124.0	2.3*
Medication	844	442	797	457	189.0	−0.5	288	286	797	406	59.0	−3.9***
Antidepressant	152	75	137	90	193.5	−0.4	56	55	140	97	110.0	−2.6**
Antipsychotic	679	391	649	397	198.5	−0.3	231	269	637	361	81.0	−3.4***
Minor tranquilizer	9	10	6	9	170.0	−1.1	1	1	11	18	112.0	−2.7**
Mood stabilizer	3	10	5	12	195.5	−0.6	1	4	10	16	127.0	−2.7**
Community support												
Emergency room	4,658	3,760	4,338	3,892	202.0	−0.2	810	1,097	3,518	2,766	80.5	−3.4***
Total cost ^a	44,967	23,826	52,563	25,043	162.0	−1.2	27,303	7,777	30,976	12,755	180.0	−0.8

^a Excludes cost of community support.

* $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$.

mation about service utilization in the 6 months before point of randomization, during the 18 months of the study, and over the course of the 18-month follow-up period was collected from case records of the 22 patients (including dropouts) in the partial hospitalization group and the 19 patients in the general psychiatric care group who participated in the original study. Case records include mental and physical health provision for patients but do not include social and other government services provided. Mental health provision was relatively easy to monitor and cost, since all patients were treated in local facilities because of the contracted nature of the service. Records of all relevant services were searched for the patient's unique NHS (social security) numbers. The services monitored included psychiatric inpatient treatment (days), outpatient visits (number), partial hospital treatment (weeks), community-based mental health services, and types and duration of pharmacological treatments (weeks of antidepressant and antipsychotic medication, minor tranquilizers, and mood stabilizers), and general hospital casualty visits (number).

Case notes were scrutinized by two coders and compared with service utilization data obtained independently from the service providers. Prescribing patterns were monitored from prescription charts and dispensing records. Reliability of coding was high (98% agreement between coders), but confirmation from independent sources generated minor discrepancies, particularly concerning exact dates of admission or discharge, the nature of medical interventions, pharmacotherapy, and the type of community support offered. Where disagreements were identified, an independent rater blind to treatment condition was asked to arbitrate. Use of community-based services (e.g., specialist drug and alcohol services) was not possible to ascertain reliably from the records until the follow-up period. Since only the general psychiatric care group was in receipt of these services during the treatment period, excluding their costs for both groups reduces the likelihood of finding differences favorable to the experimental group.

Services provided were costed at published local rates. These include "hotel" and staffing costs of each individual facility or activity, giving a unit cost for each activity. The cost of drugs was based on the contracted hospital price.

Service usage included many combinations and could be meaningfully contrasted across the two groups in terms of the cost of different treatments. We considered three cost categories: 1) psychiatric care that included the total cost of inpatient, outpatient, and partial hospital treatment services used by the patient;

2) pharmacological treatment cost; and 3) general hospital costs related to interventions in emergency rooms.

All analyses were carried out by using SPSS for Windows (Version 10). Total costs incurred for psychiatric (inpatient, outpatient, partial hospital treatment), medication, and emergency room treatment were calculated for each patient for each 6-month period, and these values were averaged for the 18 months of treatment and the 18 months of follow-up. All costs were expressed as estimated annual costs in U.S. dollars (£1=\$1.41). We used nonparametric statistics throughout because of the highly skewed distribution of the cost data. The partial hospitalization and general psychiatric care groups were contrasted at pretreatment, treatment, and follow-up by using Mann-Whitney U tests. The statistical significance of changes between pretreatment, treatment, and follow-up within groups was determined by using Wilcoxon signed ranks test. Because no figures were available for the cost of community support during pretreatment and treatment, cost comparisons within groups across time were made only for inpatient, outpatient, medication, and emergency room treatment.

Results

Results are summarized in Table 1. The two groups were similar in terms of health-related costs before treatment. During treatment, the overall costs remained comparable; the higher partial hospital treatment costs for the partial hospitalization group were offset by lower costs of inpatient and outpatient care, medication, or emergency room treatments. For the 18-month treatment period, Wilcoxon tests showed that estimated annual costs were significantly lower for both the partial hospitalization group ($z = -3.1$, $p < 0.002$) and the general psychiatric care group ($z = -3.0$, $p < 0.003$) compared with the 6-month pretreatment costs. This was due to substantial reductions in the costs of inpatient and outpatient psychiatric care in the partial hospital treatment group ($z = -4.1$ and -4.0 , respectively; $p < 0.001$) and the reduction of inpatient care for the general psychiatric care group ($z = -3.3$, $p < 0.001$). The cost of medication and emergency room care decreased significantly only in

18-Month Follow-Up Period					
Cost (U.S. dollars)					
Partial Hospitalization Group		General Care Group		Analysis	
Mean	SD	Mean	SD	Mann-Whitney U	z Score
2,954	682	12,334	7,613	24.0	-4.8***
419	1,128	5,591	3,970	33.5	-4.9***
197	186	949	895	84.0	-3.3***
2,338	951	5,795	7,494	200.0	-0.2***
26	34	655	353	0.0	-5.5***
9	17	110	58	22.0	-5.0***
16	32	525	320	2.5	-5.6***
0	0	8	5	39.5	-4.8***
1	3	13	19	151.5	-2.0*
937	1,680	4,124	3,431	86.0	-3.4***
203	469	2,501	3,172	97.0	-3.3***
3,183	775	15,490	6,115	3.0	-5.4

the partial hospitalization group ($z=-3.9$ and -4.0 , respectively; $p<0.001$).

Costs diverged sharply following discharge. The average annual cost of monitored health care for the partial hospitalization group was one-fifth of that for the general psychiatric care group. Differences were marked in all the monitored domains of care, including the costs of community support. Notably, these costs represented significant reductions in psychiatric treatment (partial hospitalization: $z=-4.1$, $p<0.001$; general psychiatric care: $z=3.1$, $p<0.002$) and medication costs (partial hospitalization: $z=-4.0$, $p<0.001$; general psychiatric care: $z=-2.2$, $p<0.03$). But while the total cost was significantly reduced during follow-up for both groups (partial hospitalization: $z=-4.1$, $p<0.001$; general psychiatric care: $z=-3.2$, $p<0.001$) only the partial hospitalization group showed a significant reduction in emergency room costs relative to the treatment period ($z=-2.8$, $p<0.005$).

Discussion

This study indicates that there are considerable savings to be made over time by providing a specialist partial hospital treatment service for patients with borderline per-

sonality disorder rather than offering treatment as usual. While the partial hospital treatment program itself is an additional cost, this is offset even during treatment by a reduction of inpatient and emergency room treatment. At follow-up, compared with pretreatment costs, the mean annual cost savings associated with the program were \$12,000, thereby recouping the cost of the program over 2 years.

There are a number of major limitations to this study, including the small study group size, the limitations to the randomization (three excluded subjects in the general psychiatric care group crossed over and three early dropouts from partial hospital treatment group) and the multi-component treatment package. We have partially addressed these limitations by including data from early dropouts in an intent-to-treat analysis and by manualizing the treatment package. Our inability to cost adequately community support over the course of treatment and estimate indirect costs further limits generalization. Costs based on U.K. statutory service provision might not match those of other countries. Nevertheless, this study suggests that the favorable outcome of a psychoanalytically oriented partial hospital treatment program for borderline personality disorder is cost effective.

Received March 11, 2002; revision received June 20, 2002; accepted July 25, 2002. From Halliwick Day Unit, St. Ann's Hospital; and the Psychoanalysis Unit, University College London, London. Address reprint requests to Dr. Bateman, Consultant Psychiatrist in Psychotherapy, Barnet, Enfield, and Haringey Mental Health NHS Trust, Halliwick Day Unit, St. Ann's Hospital, St. Ann's Road, London N15 3TH, U.K.; anthony@abate.org.uk (e-mail).

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References

1. Bender DS, Dolan RT, Skodol AE, Sanislow CA, Dyck IR, McGlashan TH, Shea MT, Zanarini MC, Oldham JM, Gunderson JG: Treatment utilization by patients with personality disorders. *Am J Psychiatry* 2001; 158:295-302
2. Bateman A, Fonagy P: Effectiveness of partial hospitalization in the treatment of borderline personality disorder: a randomized controlled trial. *Am J Psychiatry* 1999; 156:1563-1569
3. Bateman A, Fonagy P: Treatment of borderline personality disorder with psychoanalytically oriented partial hospitalization: an 18-month follow-up. *Am J Psychiatry* 2001; 158:36-42

Prevalence of Hepatitis C Among Psychiatric Patients in the Public Sector

Stephen H. Dinwiddie, M.D.

Louis Shicker, M.D.

Tom Newman, B.A.

Objective: This study estimated the seroprevalence of hepatitis C virus in a public-sector psychiatric hospital.

Method: Patients admitted between Jan. 1, 1998, and Dec. 30, 2000, were routinely screened for hepatitis C virus antibody on admission.

Results: A total of 133 (8.5%) of 1,556 patients admitted were positive for the hepatitis C virus. Aminotransferase levels were elevated but rarely abnormal among patients positive for the hepatitis C virus. Hepatitis B surface antibody was found in 27.8% of the patients positive for the hepatitis C virus. These patients were more likely to receive a diagnosis of psychoactive substance use disorder but no other psychiatric diagnoses.

Conclusions: The prevalence of hepatitis C virus is high among psychiatric patients in the public sector. Much needs to be learned about the role of universal screening and effective techniques for primary prevention and antiviral treatment in this population.

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Individuals with severe mental illness are at a high risk for blood-borne infectious diseases, such as HIV and hepatitis B. Hepatitis C virus shares risk factors for transmission with these viruses; 1.8% of the general population has been exposed to the hepatitis C virus and is therefore at risk for the long-term health consequences of chronic infection (1). Ominously, a recent study (2) found the seroprevalence of hepatitis C virus to be 19.6% among 931 severely mentally ill patients, approximately 11 times that of the general U.S. adult population. If representative of public-sector patients generally, this finding has grave import for treatment and outcome in this population. For comparison purposes, we attempted to determine the prevalence of hepatitis C among patients admitted to one public-sector psychiatric hospital outside Chicago.

Method

Laboratory information was reviewed on all civil patients admitted at least once to Elgin Mental Health Center between Jan. 1, 1998, and Dec. 30, 2000, who agreed to have blood sampled at admission; for those admitted more than once, the most recent results were used. During that time, routine admitting orders included syphilis serology, a CBC and blood chemistry, and testing for hepatitis B surface antigen and antibody. Testing for hepatitis C antibody was also routinely performed, with Abbott hepatitis C virus enzyme immunoassay 2.0 (Abbott Laboratories, Abbott Park, Ill.), and positive tests were repeated for confirmation and tested for viral load with RNA but without viral genotyping. Statistical analysis used SAS Version 6.12 (Cary, NC, SAS Institute, 1996); categorical data were analyzed with chi-square tests (with continuity correction where appropriate) and continuous data with Wilcoxon's two-sample tests or t tests.

This retrospective study was approved by the institutional review boards of Elgin Mental Health Center and Finch University of Health Sciences/the Chicago Medical School and the Illinois Department of Human Services interdisciplinary research review board.

Results

Hepatitis C virus serostatus was available for 1,556 of 1,768 nonduplicated admissions, of whom 133 (8.5%) were seropositive. The 212 patients for whom hepatitis C virus serostatus was not available were slightly more likely to be married or divorced ($\chi^2=16.59$, $df=5$, $p=0.005$) but did not otherwise differ demographically or diagnostically (data not shown).

Patients who were positive for hepatitis C virus were more likely to be male, slightly less well educated, and slightly older and to have a psychoactive substance use disorder diagnosis but no other psychiatric diagnoses (Table 1). Patients who were positive for hepatitis C virus had higher levels of alkaline phosphatase ($z=4.19$) and direct bilirubin ($z=4.32$) and lower albumen ($z=-4.04$) and platelet counts ($z=-3.12$) ($p<0.01$ in all instances).

However, few had abnormal values. Of 133 patients who were positive for hepatitis C virus, 12 (9.0%) had albumen levels below 3.5 mg/dl (in comparison to 58 [4.1%] of the 1,424 patients who were negative for hepatitis C virus) ($\chi^2=5.84$, $df=1$, $p<0.02$), and 14 (10.5%) had platelet counts of less than 130,000/ μ l (in comparison to 22 [1.5%] of those who were seronegative) ($\chi^2=39.56$, $df=1$, $p<0.001$). Direct bilirubin levels were more likely to be higher than 0.2 mg/dl among patients who were positive for the hepatitis C virus (in five [3.8%] of the 133 who were positive for hepatitis C in comparison to five [0.4%] of the 1,424 who were negative for hepatitis C) ($\chi^2=17.12$, $df=1$, $p<0.001$), but the groups did not differ in percentages showing abnormal elevations of either total bilirubin (above 1.3 mg/dl) or alkaline phosphatase (above 110 IU/liter). For total bilirubin, 5.3% ($N=7$) versus 3.9% ($N=55$) ($\chi^2=0.31$, $df=1$, $p=0.58$), respectively; for alkaline phosphatase, 5.3% ($N=7$) versus 3.9% ($N=56$) ($\chi^2=0.26$, $df=1$, $p=0.61$).