Psychiatric Admissions and Hospitalization in Israel: An Epidemiologic Study of Where We Stand Today and Where We Are Going

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Abstract

Background: Analysis of the trends in psychiatric admissions and discharges is necessary to correctly plan and distribute resources, especially given the current international climate of "deinstitutionalization." Israel, too, is implementing "reform" in the national psychiatric system – to transfer psychiatric treatment from a hospital to a community setting.

Objectives: To analyze admission and discharge patterns, explore trends in psychiatric hospital length of stay, and compare these characteristics between first-episode and chronic patients, between children, youth and adults, and between hospitals.

Methods: All admissions and discharges from inpatient psychiatric wards between the years 2000 and 2004 were analyzed and characterized according to age, length of hospitalization, legal status, and nature of admitting institution (state hospital, health fund, general hospital).

Results: Mean length of stay in adults decreased during the 5 year study period, from 37.6 days in 2000 to 36.4 days in 2004. In years with higher admissions, hospital stay was shorter ($P < 0.05$). Length of stay in psychiatric wards in general hospitals was shorter than in state hospitals ($P < 0.001$). In contrast to adults and children, length of stay among adolescents showed a gradual increase ($P < 0.05$). Involuntary hospitalization comprised 25.3% of all admissions, and 16.8% of discharged patients were re-admitted within 30 days. A dramatic decrease (24.3%) in the number of chronic hospitalizations was noted.

Conclusions: Various factors may account for these developments. Protracted hospitalizations may be reduced through changes in various aspects of treatment planning and psychiatric care continuum. The decrease in number of admissions, length of stay and number of chronically admitted patients remains in line with international practices. Particular attention needs to be devoted to planning and funding so that availability of community services matches reduction in psychiatric hospitalization.

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For Editorial see page 818

Trends in psychiatric admissions and discharges are critically important for understanding the epidemiology of psychiatric illness as well as the correct and appropriate distribution of resources. These factors are particularly important given the wide cultural differences and distinct characteristics of various administrative bodies governing the management of psychiatric illness around the world. It should also be emphasized that trends and patterns of admissions, length of hospitalization, types of admissions (e.g. voluntary vs. involuntary) should be monitored in order to plan resources and to predict responses of the health system to any administrative or political changes in health policy and healthcare delivery. Given the current international climate of "deinstitutionalization" in hospital-based psychiatric treatment, it becomes particularly important to monitor, and perhaps even direct these trends in order to more effectively plan and manage the treatment of patients at various stages of psychiatric illness [1].

Israel is currently implementing a change in the hospitalization trends of its national psychiatric system. Based on several successful medical models including reliable research paradigms, the new approach is to be based on the transfer of psychiatric treatment from a hospital setting to a community service setting. Evidence from similar models internationally demonstrates that community treatment is more effective than hospital treatment in reducing the number of hospitalizations and shortening the length of stay. Patient follow-up also indicates successful integration into the community with adequate post-hospitalization outpatient care.

In this study we analyze the various admission and discharge characteristics of visits to the psychiatric emergency room in Israel, explore trends in psychiatric hospital length of stay, and compare these characteristics between first-episode and chronic patients, between children, youth and adults, as

well as between psychiatric wards in general hospitals and large government academic tertiary psychiatric hospital centers.

Patients and Methods

Study population

All admissions and discharges from inpatient psychiatric wards during the period 2000–2004 were analyzed. Acute hospitalization was defined as hospital admission followed by discharge within a year; chronic hospitalization was defined as any hospitalization lasting longer than one year. For the purposes of this study, according to agreed upon hospital specifications resulting in unit allocation, children were defined as individuals under age 12 years, youth 12 to 20 years, and adults over the age of 21.

Unit description

The study investigated admission and discharge patterns at 8 psychiatric units on the premises of general medical hospitals and at 14 psychiatric hospitals; 2 of these psychiatric hospitals are affiliated to health management organizations and are therefore considered non-state hospitals [see Table 1 for key]. Seven of the 8 psychiatric units include one ward of 34 beds, except for "A" which includes on its premises 3 wards of 30 beds each. The psychiatric hospitals range in size from 140 to 460 hospitalized patients ("I" has 660 beds but only 460 patients).

Table 1. Discharges and length of stay in psychiatric wards and psychiatric hospitals

Hospital	Average LOS	2004 (6 months) Average LOS	2004 (6 months) Discharges	2003 Average LOS	2003 Discharges	2002 Average LOS	2002 Discharges	2001 Average LOS	2001 Discharges	2000 Average LOS	2000 Discharges
Psychiatric ward											
A	24.14	21.7	709	23	1399	23.4	1384	25.8	1233	26.8	1166
B	37.58	34.7	183	39.1	355	37.3	361	41.6	329	35.2	338
C	41.26	33.3	79	43.6	141	43.6	152	45.6	148	40.2	164
D	19.38	15.7	97	20.7	148	20.3	133	20.4	133	19.8	141
E	17.42	17.5	251	16.3	585	17.2	551	18.9	609	17.2	718
F	34.54	37	88	33.7	190	35.5	189	33.8	199	32.7	203
G	31.08	41.7	86	33.5	208	25	265	26.3	269	28.9	221
H	26.54	27.1	61	25.5	129	29.4	107	27.4	127	23.3	122
Psychiatric hospital											
I	41.72	41.9	687	41.7	1386	40.7	1351	40.9	1534	43.4	1424
J	35.72	36.5	1054	34.1	2175	34.2	2294	37.7	2071	36.1	2193
K	45.1	45.6	652	46.4	1181	47.6	1152	43.6	988	42.3	1104
L	32.4	29.7	963	32.6	1344	32.1	1308	32.2	1323	35.4	1295
M	42.72	44	649	48.3	646	41.5	551	45.3	554	34.5	597
N	48.04	49	580	46.8	1101	44.8	949	47.9	907	51.7	1067
O	43.8	28.5	805	45.2	1177	42.9	1178	53.8	1051	48.6	1143
P	34.18	39.2	275	30.3	1569	32.9	1684	34	1602	34.5	1528
Q	42.78	43.2	434	35.8	586	38.1	502	49.7	366	47.1	401
R	36.14	44	179	35.6	945	36.2	896	33.6	841	31.3	915
S	47.68	45.1	501	47	319	49.2	262	46.8	241	50.3	211
T	40.74	32.4	536	42	978	41.7	957	45.6	978	42	1110
U	31.1	21.2	106	31.5	988	31.3	927	34.6	925	36.9	793
V	48.64	38.8	7421	66.4	159	48.9	150	46.9	238	42.2	244

LOS = length of stay

Results

Clinical examinations in the ER and subsequent admissions

For the year 2003, 28,846 patients as a combined total were received in Israeli psychiatric emergency rooms and underwent clinical psychiatric examination. Of these, 15,389 (53.3%) were admitted to psychiatric wards either on the premises of a general hospital or in state psychiatric institutions. Table 1 presents detailed admission statistics according to hospital.

Hospitalizations under 1 year in duration

The number of admissions during the period 2000–2004 was fairly stable, with length of stay averaging less than one year. The average length of stay among adult patients ranged from 37.6 days in 2000 to 36.4 days in the first half of 2004. Interestingly, results indicate that in the years with a higher number of admissions, length of stay was shorter [Figure 1: note years 2002, 2003 and 2004 as compared to years 2000 and 2001] (r = -0.69, $P < 0.05$). There was a clear difference between average length of stay in psychiatric wards in general hospitals compared to state psychiatric hospitals, with the former demonstrating a very obvious shorter hospitalization compared to the latter (40.76 days vs. 28.99 days). Thus, t-test for independent samples comparing the average length of stay for the years 2000–2004 between psychiatric wards in general hospitals (n=8) and psychiatric hospitals (n=14) indicated a robust difference (t = 3.81, df = 20, $P < 0.001$) [Figure 2]. This observation was

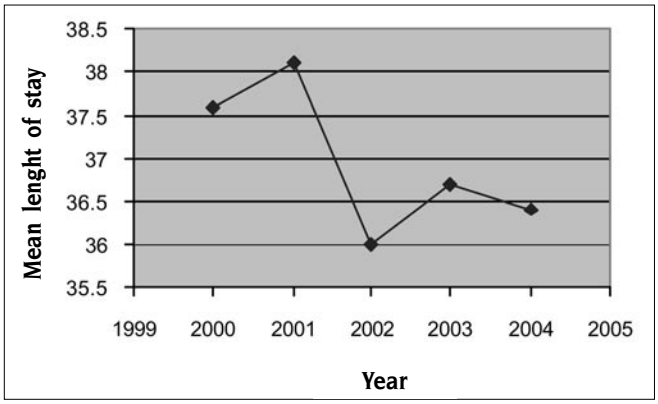

Figure 1. Mean hospital length of stay and admissions during the period 2000–2004

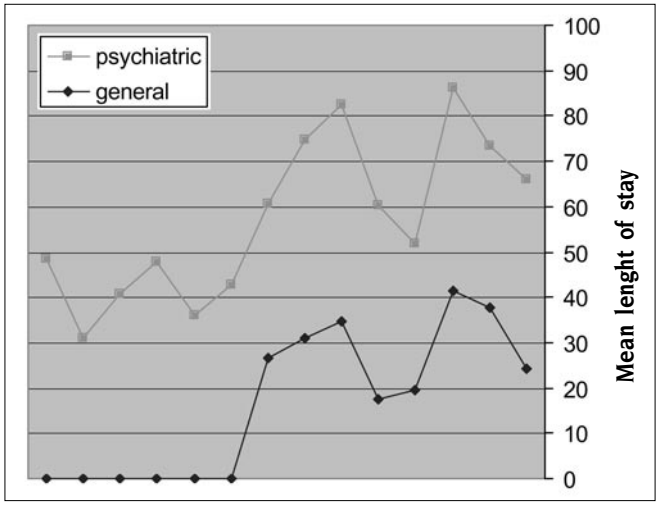

Figure 2. Institutions and psychiatric wards in general medical hospitals

noted over each of the 5 years of the study. Among the psychiatric wards, the shortest hospital stay (average 17.4 days) was consistently in "E," and the longest (average 41.2 days) in "C." Among the psychiatric hospitals, the shortest hospital stay (average 34.3 days) was in "L" and the longest (average 51.1 days) in "V."

In children, the average length of stay was 75.2 days and, similar to adults, showed a decrease (r = -0.56, $P < 0.05$). This marked decrease over the study period may be due in part to an aberration noted in the first half of 2004 showing a significant shorter average length of stay in this subpopulation of patients. Among adolescent youth, average length of stay during the study period was 51.4 days (range 48.9–52.3). However, in contrast to adults and children, length of stay among the adolescent youth indicated a gradual increase for the same period (r = 0.64, $P < 0.05$).

First-episode admissions

In 2003, there were 900 first-ever admissions to the psychiatric wards of general hospitals compared to 1113 to psychiatric hospitals. The average length of stay of these admissions was shorter in psychiatric wards than in psychiatric hospitals (27.4 days vs. 30.6 days). Overall, the average length of stay for first-episode admissions (irrespective of the reason for admission) was 29.1 days. Hospitals "C" and "E" had the longest and shortest hospital stays respectively among general hospitals (51.4 vs. 8.5 days) for first-episode admissions. Among psychiatric hospitals, "P" and "V" had the shortest and longest hospital stays respectively (18.1 vs. 124.3 days). Hospitals "L" and "P" had the same – 19.9 days. Hospital "A" received the most first-episode patients by far (n=356) and "V" the fewest (n=13).

Involuntary admissions

In 2003, there were 3633 discharges of involuntary admissions with an average length of stay of 43.3 days. Involuntary hospitalization comprised 25.3% of all admissions to psychiatric hospitals during this period. The largest number of involuntary admissions was at "J" (n=777), "I" (n=454), "L" (n=432) and "P" (n=431) and the fewest by far at "V" (n=25).

Re-admissions within 6 months

Overall, in 2003, there were 18,095 discharges. Of this total, 16.8% of the patients were re-admitted within 30 days and 23.1% within 30–180 days. Among the psychiatric wards, "E" (17.2% and 24.1%) had the highest re-admission rates and "D" the lowest at 30 days (4.9%) and "B" the lowest at 30–180 days (10.2%). Among the psychiatric hospitals, "J" had the highest re-admission at 30 days (24.2%) and "V" the highest at 30–180 days (29.2%); "O" had the lowest re-admission at 30 days (14.2%) and "Q" the lowest at 30–180 days (20.2%).

Among the adolescent youth, average re-admission at 30 days was 14.7% of the total hospitalizations (1095) and 18.2% at 30–180 days. Children were re-admitted at a rate of 11.7% within 30 days of discharge with a similar rate of 11.1% at 30–180 days.

Chronic hospitalization

The average percentage of patients hospitalized for more than a year in duration indicates a clear decrease during the study period, from a high of 4% in 2000 to 3.2% in 2001, to 2.7% in 2002 to 2.3% in 2003. This trend was noted in all three age subgroups (children, youth and adults). Hospitals "I" and "V" showed a consistently higher number of chronic patients in contrast to "M," "T" and "U" which consistently showed the lowest.

Of the three age groups, children showed the greatest decrease in numbers of chronically hospitalized patients, from a peak of 6% in 2000 to an average of 1% in 2003. When patients who were chronically hospitalized for more than a year in the context of an involuntary court hospitalization are excluded from the analysis, the average percentage of patients hospitalized for more than a year decreased to 1.8% of all hospitalizations.

An analysis of the number of patients in the public hospitals at the end of each year whose length of stay exceeded one year indicates an overall dramatic decrease in their number (1484 in 2001, 1396 in 2002, 1212 in 2003, and 1123 in 2004). This represents a 24.3% decrease over the 4 years. If these patients are analyzed further according to the number of years hospitalized, this trend of decreased number of chronic hospitalized patients is most evident in those chronically hospitalized for 5 years or more, with a sharp decrease in prolonged length of stay from a maximum of 852 in 2000 to 589 in the first half of 2004 (30% decrease). In the private hospitals this trend was similar, though not as marked, with a decrease in number of beds ranging from 1079 in 2000 to 910 in 2004 (decrease of 15.6%).

Discussion

Results from this epidemiologic survey of psychiatric inpatient admissions and hospitalization indicate a clear decrease in the number of hospitalizations for psychiatric illness over the

5 years of the study, and a fairly stable mean length of stay. The length of stay was much shorter in psychiatric wards on the premises of general hospitals than in psychiatric hospitals. Apart from the obvious explanation of budgetary pressures, which are considered more acute in general hospitals, other factors may be involved such as management pressures, time-honored differences in the nature of treatment, as well as in the nature of illness in the two different types of inpatient settings [2]. In addition, efficacy of treatment may differ between these two types of facilities, as noted in some studies comparing admission and treatment patterns between public and private inpatient settings [3]. Others, however, found that hospitalizations in the two settings were remarkably similar [4]. A fairly high percentage of admissions are involuntary, but this is not necessarily associated with longer admissions [5].

Children and youth had much longer lengths of hospitalization than adults. This may be explained by different modes of treatment, aspects of the underlying illness, available resources, and social factors. While this study did not investigate admission patterns according to the age range of adults, previous studies have indicated longer psychiatric hospitalizations in individuals over the age of 50 compared to those under 50. Our findings suggest that adolescent youth and children also exhibit a peak in psychiatric hospitalization [6]. While these observations are not unlike other experiences outside of Israel, it has been suggested that protracted hospitalizations in children may be reduced by changing various aspects of the treatment plan and continuum of psychiatric care [7].

The decrease in the number of admissions, length of stay, and number of chronically admitted patients – at least over the 5 years studied – corresponds with international practices and standards of the "deinstitutionalization" process. Most importantly, it is in line with more recent measures proposed in Israel. These "reform" recommendations, in keeping with worldwide trends over the past decade or so, suggest that a change in resource allocation from hospital-based care in favor of community-based mental healthcare or day hospital care [8] would dramatically decrease the need for hospital beds, cost half as much, and be clinically at least as efficacious as inpatient psychiatric treatment [9]. Moreover, improved community mental health services reduce hospital stay when required [10]. The deinstintutionalization process is not necessarily related to improved pharmacological availability and treatment but, more likely, to better allocation and management of resources. In addition, it has been suggested that short hospitalization can be at least as effective as a conventional hospital treatment program, and that a shorter stay in hospital does not necessarily imply an increased risk of re-admission within a short time [11]. Furthermore, most studies did not demonstrate any difference in outcomes of short or long-term hospitalizations [12]. Most importantly, many have shown that chronically hospitalized psychiatric patients, including the elderly, enjoy a better quality of life in community homes compared with psychiatric hospitals [13]. However, notwithstanding the research supporting these reforms, a number of potential disadvantages may still exist with the system if not addressed. These include a possible increase in the number of homeless, an increase in the mortality rate among psychiatric patients, and an increase in rehospitalization rates of chronically ill patients (known as the "revolving door syndrome"). To avoid these potential pitfalls in the system accompanying the reform, particular attention must be given to planning and funding, so that availability of community services matches reduction in psychiatric hospitalization. [14].

It is also important to emphasize that despite the decrease in the psychiatric patient population by means of policy management and direction, there still exists a population of long-stay patients that will remain similar to the long-stay patients of the past in terms of duration of hospitalization. Thus, appropriate mechanisms will need to be instituted to accommodate these patients who may on average be younger than the chronic hospitalized psychiatric patients of the past but nevertheless are resistant to treatment and various modes of rehabilitation efforts [15]. Having said this, it should be remembered that although the number of long-stay patients in public psychiatric hospitals around the world has decreased dramatically, a small group of patients still requires care in a tertiary hospital setting. Therefore, public/state psychiatric hospitals will continue to occupy a significant niche in the mental health system [16].

An analysis of repeat admissions yielded findings similar to those of other reports [17]. Whether these patients have any particular clinical features predisposing to repeated admissions remains unknown and is beyond the scope of this study. However, a particularly noteworthy finding of the present study was the fact that the highest monthly rate of re-admissions during the first 6 months occurred during the first 30 days after discharge. This holds true irrespective of age group. Whether some of these re-admissions could have been prevented by more appropriate discharge planning and resource availability during the first month after discharge is not known. Since knowledge of such factors leading to repeat admission at varying time points following discharge may have predictive and potential preventive value, this relatively specialized subgroup of patients should be the focus of future investigation.

Study limitations

Using the average number of admissions and not the "median" is a limitation of the present study While average admissions over time periods is the usual and traditional manner of collecting and analyzing such data, some have suggested that information may be lost if the median is not analyzed. This may be explained by the phenomenon that, subsequent to analysis of the first 13 weeks of hospitalization, admission distribution curves may correspond very closely to a theoretical exponential decay curve. This may have implications for recording the average length of stay and, consequently, for comparing one hospital unit with another. It may also have implications for planning acute psychiatric services [18]. Another limitation is that we were unable to determine the number of patients involved in the "diversion process," as noted in the USA [19], i.e., how many patients were transferred from private psychiatric wards

to public psychiatric hospitals [20]. The present study was conducted over a 5 year period only and it is not known if these patterns hold true for the years prior to the study and whether admission patterns may have been affected by spurious findings based on other ephemeral or confounding variables such as climatic differences during the years of the investigation, as suggested by some [21].

Conclusions

Knowledge of admission patterns and number of chronic psychiatric patients in psychiatric ward settings is essential for predicting and planning care for acute patients [16]. Such epidemiologic studies of trends of admission and hospitalization practices are important to determine and manage effects of the deinstitutionalization process and to plan accordingly, a process that has found worldwide applicability over the past few decades and one that promises to provide more ethical and efficient management of the mentally ill [1,22]. In order to validate the effectiveness of the system, we suggest that patients chronically hospitalized for longer than a certain specified period (such as 6 months) should be examined and reassessed by an interdisciplinary team with regard to intensive treatment and possible rehabilitation [23]. Furthermore, the benefits of brief hospitalization as a form of crisis management should be considered within the context of any "reform" process [24]. This requires that patients be socially integrated into the health community. In order for this to happen, educational programs and community outreach must be implemented to diminish the stigma of mental illness [13]. It is critically important that the trend of shorter hospitalizations goes hand in hand with improved continuity of care, as expressed in more effective community care, which in turn will reduce further hospitalization [1] and enhance the quality of life of patients managed in a well-planned and adequately resourced outpatient program [25]. In such a context of a national reform process, further studies to understand and fully utilize the existing hospital resources in the most efficient manner possible will be needed.

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