A Comparative Study of Psychiatric Inpatients in a General Hospital and a Psychiatric Hospital in Israel: Demographics, Psychopathological Aspects and Drug Abuse Patterns

Gregory Katz MD1, Rimona Durst MD1, Emi Shufman MD1, Rahel Bar-Hamburger MD3 and Leon Grunhaus MD1,2

1Jerusalem Mental Health Center, Kfar Shaul Hospital, Jerusalem, Israel
2Department of Psychiatry, Sheba Medical Center, Tel Hashomer, Israel
3Israel Anti Drug Authority, Jerusalem, Israel

ABSTRACT: Background: Some specialists and policy makers advocate progression of the mental health reform in Israel by transferring beds from psychiatric to general hospitals. Objectives: To compare the demographic, diagnostic and psychopathological profiles of psychiatric inpatients hospitalized in psychiatric and general hospitals, as well as their patterns of drug abuse, and to estimate the preparedness of general hospitals for the possible expansion of their psychiatric services. Methods: Between 2002 and 2006 a total of 250 patients were consecutively admitted to the Jerusalem Mental Health Center-Kfar Shaul Hospital and 220 to the psychiatric department of Sheba Medical Center, a general hospital in central Israel; the patients’ ages ranged from 18 to 65. The two groups were compared for demographic features, psychiatric diagnoses and severity of psychopathology (utilizing PANSS, HAD-21, YMRS rating scales). Drug abuse was diagnosed by urine analyses and self-report. Results: The patients in the psychiatric hospital were significantly younger, predominantly male, and more dependent on social security payments. In the general hospital, diagnoses of affective and anxiety disorders prevailed, while in the psychiatric hospital schizophrenic and other psychotic patients constituted the majority. The patients in the general hospital were decidedly more depressed; in the psychiatric hospital, notably higher rates of manic symptoms as well as positive, negative and general schizophrenic symptoms were reported. For the most abused substances (opiates, cannabis and methamphetamines) the rates in the psychiatric hospital were significantly higher. Conclusions: The differences between the two groups of inpatients were very pronounced, and therefore, the transferring of psychiatric beds to general hospitals could not be done without serious and profound organizational, educational and financial changes in the psychiatric services of general hospitals. Since each of the two inpatient systems has particular specializations and experience with the different subgroups of patients, they could coexist for a long time.

KEY WORDS: psychiatric inpatients, psychiatric hospitals, general hospitals

Overall the past 30 years there has been a significant shift in the structure of psychiatric services. The expansion of outpatient services, the massive decrease in the number of mental hospital beds and the increase in psychiatric beds in general hospitals were some of the reforms undertaken in the psychiatric system in Europe and the United States [1,2]. Apart from the obvious advantages and achievements – such as the de-stigmatization of psychiatric patients, a multidisciplinary treatment and research approach, and the reduced danger of violation of human rights – the reallocation of psychiatric beds from mental to general hospitals revealed some problems. In the U.S., reimbursement and operating margins for hospital and physician psychiatric services lag behind those of other medical services [3], and hospital ownership may play a role in their accessibility because psychiatric services are relatively unprofitable services [4]. The number of general hospitals providing psychiatric services declined from 1707 in 1998 to 1285 in 2002 [2]. The seriously mentally ill patients are especially vulnerable in this situation, and hospitals in competitive markets were less likely to admit SMI patients [5] as compared to their counterparts in non-competitive markets. In Italy, where profound reform of psychiatric services had been undertaken, many facilities suffered from major logistic and architectural

SMI = seriously mentally ill
limitations: 3% of general hospital psychiatric units were located in basements, 42% of them had no single bedrooms, and many facilities had a considerable proportion of rooms with three or four beds [6].

In Israel, in the last decade, a great effort has been made to complete the complex reform of the mental health system. The number of psychiatric hospital beds has been reduced drastically from 0.88/1000 to 0.45/1000 [7] with no substantial increase in the total number of psychiatric beds in the general hospitals. The psychiatric departments in general hospitals in Israel, with total numbers of beds less than 10% of the total number of psychiatric beds [8], provide inpatient services for mental patients suffering from physical problems as well as “regular” psychiatric patients, many of whom have no need for compulsory hospitalization. Some specialists and policy makers advocate further progression of the reform by transferring the beds from psychiatric to general hospitals [8]. Their opponents urge for a more balanced approach, especially in relation to the SMI patients and those in need of continuous and devoted treatment [9]. It is still unclear whether the Israeli general hospitals, in their present administrative, financial and professional status, are capable of making the profound changes needed to provide psychiatric inpatient services.

The objectives of the present study were to compare the demographic, diagnostic and psychopathological profiles of psychiatric inpatients hospitalized in psychiatric and general hospitals, as well as their patterns of drug abuse. This comparison could enable the estimation of preparedness of general hospitals for the possible expansion of their psychiatric services.

PATIENTS AND METHODS
The sample consisted of 250 patients consecutively admitted to the Jerusalem Mental Health Center-Kfar Shaul Hospital and 220 to the psychiatric department of Sheba Medical Center, a general hospital in central Israel, during the period 2003 to 2006. The patients, whose ages ranged from 18 to 65, were examined within 48 hours of their admission. The psychiatric diagnoses were made according to the criteria of the DSM-IV. For the differential measurement of psychopathological severity the following scales were used: Hamilton Depression Rating Scale (HAM-D-21), PANSS (Positive and Negative Syndrome Scale) and YMRS (Young Mania Rating Scale). Urine tests for THC cocaine, opiates, amphetamines and methamphetamine were performed using the Sure Step TM kits (Applied Biotech Inc., San Diego, CA, USA). The SCID-IV criteria for drug abuse were applied using self-reports and results of the urine analysis. Informed consent was obtained according to the Helsinki Declaration regulations.

STATISTICAL ANALYSIS
Chi-square was used to analyze statistically significant relationships in the distribution of categorical values. Student’s t-test on the contingency tables was used to compare rates of PANSS, YMRS, HAM-D-21, HAM-A – scales defining inpatient groups in the general hospital and the psychiatric hospital. P value less than 0.05 was considered statistically significant.

RESULTS
The results concerning rate and patterns of drug abuse in the combined sample of the two centers were published previously [10,11].

DEMOGRAPHIC DATA
There were more males in the psychiatric hospital than in the general hospital (68.8% vs. 54.1%, P < 0.005); they were significantly younger (35.01 ± 11.063 vs. 41.879 ± 12.018, P < 0.0001) and more often unmarried (58.6% vs. 41.4%, P < 0.001). The employment status in the two groups was also different: in the general hospital 68.2% of the patients held jobs compared to only 31.8% in the psychiatric hospital (P < 0.0001); the percent of patients receiving disability payments from social security was 34.8 in the general hospital versus 65.2 in the psychiatric hospital (P < 0.0001).

DIAGNOSTIC AND PSYCHOPATHOLOGICAL RESULTS
The diagnostic profile of the two groups was significantly different: in the general hospital the diagnoses of affective and anxiety disorders prevailed, while in the psychiatric hospital schizophrenic and other psychotic patients constituted the majority [Table 1]. Surprisingly, in the category of “other diagnoses,” which included organic disorders, the proportion was also higher for the psychiatric hospital. No difference was observed in the number of patients suffering from personality disorders as the primary diagnosis in the two hospitals.

The differences in the two groups were even more obvious for severity of psychopathology, measured by different rating scales [Table 2]. The patients in the general hospital were sig-

**Table 1.** Psychiatric diagnosis: general hospital vs. psychiatric hospital

<table>
<thead>
<tr>
<th></th>
<th>General hospital</th>
<th>Psychiatric hospital</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schizophrenia, schizoaffective disorder, delusional disorder, psychosis NOS</td>
<td>95 (43.2%)</td>
<td>142 (56.8%)</td>
<td>&lt; 0.005</td>
</tr>
<tr>
<td>Affective disorders</td>
<td>74 (33.6%)</td>
<td>52 (20.8%)</td>
<td>&lt; 0.005</td>
</tr>
<tr>
<td>Anxiety disorders</td>
<td>34 (15.5%)</td>
<td>14 (5.6%)</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Personality disorders</td>
<td>9 (4.1%)</td>
<td>14 (5.6 %)</td>
<td>NS</td>
</tr>
<tr>
<td>Other diagnosis (including organic disorders)</td>
<td>8 (3.7%)</td>
<td>28 (11.2%)</td>
<td>&lt; 0.005</td>
</tr>
</tbody>
</table>

NOS = not otherwise specified, NS = not significant

THC = tetrahydrocannabinol
public opinion and indications that patients with a good prognosis tend to be significantly more depressed; in the psychiatric hospital notably higher rates of manic symptoms, as well as positive, negative and general schizophrenic symptoms, were reported.

**DISCUSSION**

The results of the study revealed that the differences between the two groups of inpatients were even more pronounced than had been hypothesized. Some diagnostic differences could be attributed to the gender profile of the two populations, but it is still far from a comprehensive explanation. In fact, the profound differences in profiles of the two populations indicated that patients with a good prognosis tend to be hospitalized more frequently in general hospitals. Although public opinion [12] and some professionals [13] prefer general hospitals for treating psychiatric inpatients, the specialized psychiatric hospitals in Israel still play a core role in the treatment of severe mentally ill inpatients. Despite the great progress that has been achieved in recent decades in the treatment of psychiatric patients, the outcome of severe mental disorders has not substantially changed [14]. The results of prior research underline the need for more specialized mental health services for the SMI [15,16].

In a recently published article, Liptzin et al. [3] summarize the U.S. experience with psychiatric services in general hospitals with some worrisome commentaries about the future of the system. The authors state that "patients with psychiatric problems are frequently cared for in the emergency rooms of general hospitals and can tie up staff and beds if they cannot be evaluated appropriately"... "The cost of providing emergency and consultation services has historically been subsidized by the margins from inpatient psychiatric services. As margins erode, hospitals may curtail these essential services, leaving psychiatric patients in medical-surgical beds without appropriate and humane treatment and burdening medical staff inexperienced in caring for psychiatric patients."

While psychiatric services in general hospitals in the USA have become vulnerable to downsizing, closure, or movement off campus for various reasons, the number of admissions nationwide in the state psychiatric hospitals between 2002 and 2005 increased by 21.1% (admissions with schizophrenia increased by 23.2%, with affective disorders increasing by 16.3%), and the number of residents increased by 1.0%. The most likely explanations for this trend are an increase in the number of forensic admissions and residents, and a decline in the availability of housing and community-based care providers [17].

The high rate of comorbidity of substance abuse and mental disorders in general [18] and among hospitalized patients [19] is a widely known fact. The comorbid patients are usually more psychotic [20] and more violent [21]. Although there are examples of successful incorporation of the services for dual diagnostic patients in general hospitals [22], these patients are hospitalized more often in psychiatric hospitals than in psychiatric departments of general hospitals.

In conclusion, the transferring of psychiatric beds to general hospitals cannot be undertaken without serious and profound organizational, educational and financial changes in the psychiatric services of general hospitals. In the light of proposed reform in the Israeli mental health system, the two inpatient systems have their expertise and experience with different subgroups of patients and therefore could coexist for a prolonged period.

**LIMITATIONS**

The study was cross-sectional with no follow-up of the hospitalized patients. Though the number of patients was relatively high, only two centers participated in the survey. No statistical information was obtained on comparisons between the two

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**Table 2. Psychopathology severity: general hospital vs. psychiatric hospital**

<table>
<thead>
<tr>
<th></th>
<th>General hospital</th>
<th>Psychiatric hospital</th>
<th>P value</th>
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<tbody>
<tr>
<td>PANSS-Positive</td>
<td>13.089 ± 5.333</td>
<td>17.897 ± 7.099</td>
<td>&lt; 0.0001</td>
</tr>
<tr>
<td>PANSS-Negative</td>
<td>23.648 ± 6.908</td>
<td>30.007 ± 7.401</td>
<td>&lt; 0.0001</td>
</tr>
<tr>
<td>PANSS-General</td>
<td>13.099 ± 5.890</td>
<td>14.901 ± 6.002</td>
<td>&lt; 0.005</td>
</tr>
<tr>
<td>YMRS</td>
<td>9.943 ± 9.965</td>
<td>13.288 ± 9.414</td>
<td>&lt; 0.0005</td>
</tr>
<tr>
<td>HAM-D-21</td>
<td>25.726 ± 8.112</td>
<td>8.716 ± 8.648</td>
<td>&lt; 0.0001</td>
</tr>
</tbody>
</table>

**Table 3. Active drug abuse (last month): general hospital vs. psychiatric hospital**

<table>
<thead>
<tr>
<th>Substances</th>
<th>General hospital</th>
<th>Psychiatric hospital</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opiates</td>
<td>4 (1.6%)</td>
<td>19 (7.8%)</td>
<td>&lt; 0.005</td>
</tr>
<tr>
<td>Cannabis</td>
<td>15 (8.8%)</td>
<td>39 (15.6%)</td>
<td>&lt; 0.005</td>
</tr>
<tr>
<td>Amphetamine</td>
<td>1 (0.5%)</td>
<td>4 (1.6%)</td>
<td>NS</td>
</tr>
<tr>
<td>Methamphetamine</td>
<td>5 (2.3%)</td>
<td>13 (5.8%)</td>
<td>NS</td>
</tr>
<tr>
<td>Cocaine</td>
<td>3 (1.4%)</td>
<td>4 (1.6%)</td>
<td>NS</td>
</tr>
</tbody>
</table>
populations in terms of disease duration, number of previous episodes, number of previous hospitalizations, number of compulsory hospitalizations, comorbid medical conditions, length of current hospitalization, and medications. Due to the differences between the mental health systems around the world it is difficult to compare the changes that they have undergone in recent years.

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Corresponding author:
Dr. G. Katz
Jerusalem Mental Health Center, Kfar Shaul Hospital, Givat Shaul, Jerusalem 91660, Israel
Phone: (972-2) 655-1503
Fax: (972-2) 651-8590
email: rkgatz@012.net.il

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Capsule
A genetically humanized mouse model for hepatitis C virus infection

Hepatitis C virus (HCV) remains a major medical problem. Antiviral treatment is only partially effective and a vaccine does not yet exist. Development of more effective therapies has been hampered by the lack of a suitable small animal model. Although xenotransplantation of immunodeficient mice with human hepatocytes has shown promise, these models are subject to important challenges. Building on the previous observation that CD81 and occludin comprise the minimal human factors required to render mouse cells permissive to HCV entry in vitro, Dorner et al. attempted murine humanization via a genetic approach. They showed that expression of two human genes is sufficient to allow HCV infection of fully immunocompetent inbred mice. They established a precedent for applying mouse genetics to dissect viral entry and validated the role of scavenger receptor type B class I for HCV uptake. The researchers demonstrated that HCV can be blocked by passive immunization, and showed that a recombinant vaccinia virus vector induces humoral immunity and confers partial protection against heterologous challenge. This system recapitulates a portion of the HCV life cycle in an immunocompetent rodent for the first time, opening opportunities for studying viral pathogenesis and immunity and comprising an effective platform for testing HCV entry inhibitors in vivo.

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