



Trends in dual diagnosis of severe mental illness and substance use disorders, 1996–2010, Israel



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ARTICLE INFO

Article history:

Received 21 September 2014

Received in revised form 7 January 2015

Accepted 9 January 2015

Available online 16 January 2015

Keywords:

Dual diagnosis

Mental disorder

Substance related disorder

Temporal trends

Incidence

Israel

ABSTRACT

Objectives: (1) To examine the trends in the incidence of dual diagnosis (DD) of severe mental illness and substance-related disorders among inpatients in Israel, and (2) the demographic and clinical correlates of DD patients.

Method: Using data from the National Psychiatric Case Register, we identified 56,774 inpatients aged 15–64 whose first psychiatric hospitalization occurred between 1996 and 2010. We compared the characteristics of inpatients having DD with drugs, alcohol or drug/alcohol abuse with those with mental disorder only.

Results: Over the period, DD with drugs decreased from 8.2% in 1996 to 6% in 2010; DD with alcohol increased from 3% to 4% and DD with drugs/alcohol from 2% to 4%. DD with drugs was highest, whereas DD with alcohol was lowest for the youngest age- group in 1996 but increased to the same as other age-groups in 2006–2010. Male gender, a previous suicide attempt, compulsory hospitalizations and marital status were positive predictors for all DD. Immigrant status was a positive predictor of DD with alcohol, but the opposite for DD with drugs; being Jewish and psychotic diagnosis was a positive predictor of DD with drugs, but negative for DD with alcohol.

Conclusions: Over the study period, DD with drugs has decreased among young patients, although it is still higher than among older groups. However, DD with alcohol or drugs/alcohol has increased in the younger group. The clinical-demographic profile of DD patients was similar to that from the relevant literature, except for immigrant status that was negatively associated with DD with drugs.

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1. Introduction

Dual diagnosis (DD) relates to the co-occurrence of mental and substance-related disorders (SRD). DD is a prevalent disorder; according to the Epidemiological Catchment Area study (Regier et al., 1990), its lifetime prevalence is 47% for patients with schizophrenia and 56% for those with bipolar disorder. Compared with schizophrenia patients who do not use alcohol and drugs, patients with DD tend to have an early age at onset, more frequent and longer periods of hospitalization (Jiménez-Castro et al., 2011), more severe depressive and psychotic symptoms (Haddock et al., 2013), more episodes of suicidal and violent behavior (Dervaux et al., 2003; Latt et al., 2011), and more legal and financial problems (Jiménez-Castro et al., 2011; Maremmanni et al., 2014). Likewise,

bipolar patients with DD have 6.4-fold risk for violent crime, compared with bipolar patients without co-morbidity (Fazel et al., 2010). Because they are less likely to adhere to their medication regimen, patients with DD also are at an increased risk for relapse and re-hospitalization (Drake et al., 1996; Xie et al., 2005). However, even in those who do adhere to their medication, commonly abused substances can trigger or exacerbate psychiatric symptoms increasing relapse and rehospitalization rates.

Changes in the prevalence of commonly used substances in people with DD are discussed in two studies that estimated prevalence of substance use disorders in persons with severe mental illness (SMI) in Philadelphia (Mueser et al., 1990, 1992). They found a shift from cannabis being the most commonly used drug to cocaine and associated changes in demographic correlates. Across these and a later study of the same group conducted in New Hampshire (Mueser et al., 2000), the same demographic correlates of substance abuse were found, including the association between age and marital status and drug use, also found by other studies (Kavanagh et al., 2004).

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Despite numerous studies on early detection and treatment of DD (Buckley, 2006; Deas, 2006; Vornik and Brown, 2006; Green, 2006), no large-scale studies on temporal trends in the prevalence of DD among hospitalized patients and their demographic and clinical characteristics in Israel have been conducted.

Therefore, the present study aimed to examine (1) the temporal trends in the incidence of DD of SMI and reported substance abuse among patients, whose first psychiatric hospitalization occurred between 1996 and 2010, and (2) the demographic and clinical correlates of these DD patients. Based on the relevant literature and our clinical experience, we hypothesized that: (1) the proportion of DD amongst all first psychiatric hospitalizations in Israel would increase during the study period due to the increasing prevalence of substance related disorders in the general population; (2) specific population groups (e.g., new immigrants) would demonstrate higher DD rates due to their increased vulnerability, challenges of acculturation and exposure to post-migration stress (Ritsner and Ponizovsky, 1999; Ponizovsky et al., 2009) and (3) involuntarily hospitalized patients would have higher DD rates because they have more episodes of suicidal and violent behavior (Latt et al., 2011) compared to voluntarily admitted patients.

2. Method

2.1. Study design and data collection

Using data from the National Psychiatric Case Register (NPCR) of the Ministry of Health, we identified inpatients aged 15–64 years who had their first psychiatric hospitalization between the years 1996 and 2010. The NPCR is the bank of data of all psychiatric admissions and discharges countrywide since 1950 (Lichtenberg et al., 1999). The hospital admission form used for this database is completed in the emergency room by the physician who admits and examines the patient and includes a question on substance abuse: psychoactive substance abuse (“drug abuse”), alcohol abuse or both drug and alcohol abuse. To verify SRD diagnosis, those suspected to have substance abuse subsequently have their urine sent for analysis.

Over the years 1996 to 2010, the number of new admissions annually ranged between 3792 and 4653, an average of about 4300 per year. Diagnoses at first discharge were coded according to the International Classification of Diseases, the Tenth Edition (ICD-10, World Health Organization, 1993) and those with a severe mental illness (SMI) were chosen including: all non-affective psychotic disorders (including schizophrenia) (F20–F29), affective disorders (F30–F39), drug and alcohol addiction (F10–F19), organic brain disorders (F00–F09) and other disorders (F40–F69, F90–F99). Patients aged 15–64 at first admission were included in the study. Patients were identified as having DD at the first admission as those who had positive categories of drug or alcohol abuse and a discharge diagnosis of severe mental illness other than SRD (F10–F19). They were divided into three groups: those with drug abuse only, alcohol abuse only, and both drug and alcohol abuse. The study did not require the Institutional Review Boards' approval because patients' identification information was deleted from the datasets.

2.2. Analyses

We calculated the proportion of all first admitted psychiatric inpatients identified with the three types of DD during the chosen time period and their age specific and age adjusted rates per 100,000 population aged 15–64, as three year running averages. The standard population for age adjustment was the 2008 census population. The socio-demographic and selected clinical characteristics of patients with DDs were compared with those without DD. These included: gender, age, marital status, nationality, immigration status, first discharge diagnosis, legal status (voluntary/involuntary) of first hospitalization and recent suicide attempt (during two months before admission) and number and cumulative length of hospitalizations.

The relative risk of having DD for each group compared with those without DD was estimated by an unconditional logistic regression model. Only cases with complete datasets were included in the analysis. We calculated odds ratios (OR) and 95% confidence intervals (95% CI). Predictor variables were male versus female gender, age groups 15–24 and 25–44 versus the oldest age group (45+), marital status (single/divorced/separated or widowed versus married), nationality (Jewish versus non-Jewish), immigrant status (new immigrants since 1990 versus Israelis born or older immigrants before 1990), diagnosis at first discharge (non-affective psychotic disorders, including schizophrenia; ICD-10: F20–F29) versus all other ICD-10 diagnostic categories, suicidal behavior: presence of known suicide attempt versus no or unknown attempt in the two months preceding first admission and legal status of first admission (compulsory versus voluntary). We considered OR = 1 or over to be positive predictors, and those lower than 1.0 to be negative predictors. All analyses were performed with the SAS-9.2 software for Windows-2007.

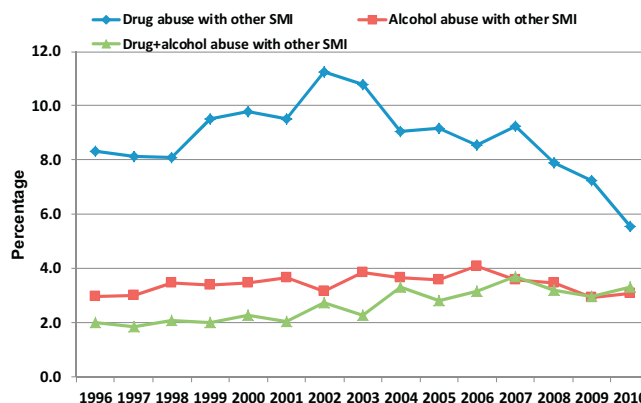


Fig. 1. Percentage of first admissions with dual diagnosis of severe mental illness and reported substance abuse for patients admitted between 1996 and 2010.

3. Results

3.1. Demographic and clinical correlates of DD

Over the study period of 1996–2010, of the 51,877 patients first admitted between the ages of 15–64 with a SMI, 7726 had a DD of reported substance abuse disorder together with another SMI, 4582 with drug abuse, 1774 with alcohol abuse and 1370 with both drug and alcohol abuse. The percentage of patients with DD according to socio-demographic and clinical variables are shown in Table 1, and these variables were all significant ($P < 0.0001$ when comparing the four groups). All types of DD were more prevalent amongst males. DD with drug abuse, was found more at younger ages, single, and Jewish, whereas DD with alcohol was found more with older patients, new immigrants and non-Jewish. A diagnosis of psychotic disorder was more prevalent amongst those diagnosed with a DD with drug abuse compared to those without any DD, and was less prevalent for those with a DD with alcohol abuse compared to those without any DD.

For all types of DD, more patients had previous suicide attempts, and compulsory hospitalizations, than those without DD. Previous suicide attempt was highest for those with DD with alcohol abuse. Lowest mean number of admissions was found for patients with no DD, but the mean total hospitalization was lowest for those with DD with alcohol abuse, lower than for those without any DD, and it was highest for those with DD with drug abuse.

3.2. Trends in DD

The percentage of DD with drug abuse on admission was 8.3% in 1996. It increased in following years reaching a peak of 10–11% in 2002–2003 but from then had a decreasing trend reaching 5.5% in 2010. 3% of new admissions had DD with alcohol abuse, which increased to about 4% in 2003–2006 but then decreased to 3% in 2009–2010. The greatest change was in those with DD with drugs and alcohol, 2% of first admissions in 1996, but increasing from 2002 to reach almost double that, 3.7% in 2007 which was followed by a decrease the final years of the study period to about 3% (Fig. 1).

Fig. 2 shows trends in rates of DD by age, and total age adjusted rate. DD with drugs was highest for the youngest age group, 15–24, and showed similar trends to the total, increasing from an average rate of 14.0 per 100,000 population in 1996–1998 to a maximum of 18.7 in 2000–2002 and then decreasing to an average rate of 7.8 in 2008–2010. The trends for the age adjusted and other age specific rates also were similar, but with smaller variations (Fig. 2A). DD with alcohol was lower at younger ages at the beginning of the study period, 1.9 per 100,000 population compared to 3.1 and

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