

The course of schizophrenia: Progressive deterioration, amelioration or both?

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Abstract

Background: Schizophrenia may follow a course of amelioration, deterioration or stability. It is possible that deterioration at the aggregate level may be due to a sub-group of patients with a tendency to deteriorate.

Aims: To examine the course of schizophrenia in a national population-based cohort.

Methods: All first admissions for schizophrenia in Israel 1978–1986 were followed for readmissions in the Israeli psychiatric hospitalization registry for 10 years ($n=6865$). Readmission rates were examined using cluster analysis. This was followed by an examination of changes in readmission patterns.

Results: Cluster analysis identified a small cluster of patients who spent more days in the hospital over time and two clusters that improved. A priori classification of the patients into deteriorating, improving and stable (based on days hospitalized per year) revealed that approximately 75% of patients improved over time.

Conclusions: Over time a majority of patients appear to improve and a minority appear to deteriorate.

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1. Introduction

Schizophrenia was originally thought to follow a course marked by deterioration in the ability to function (Kraepelin, 1971) and more recently to follow ‘a relapsing course for life in most sufferers’ (Davies, 1994), a view that remains widely accepted (Walker et al., 2004). Contrary to the notion of progressive deterioration, others propose and demonstrate that the course of schizophrenia improves with time and is thus

best described as following a course of ‘progressive amelioration’ (Eaton et al., 1992a,b, 1998; Mortensen and Eaton, 1994; Munk-Jørgensen et al., 1991).

These divergent views of the course of schizophrenia have recently been re-evaluated by examining readmission rates following an initial psychiatric hospitalization using data from a psychiatric registry in Denmark (Olesen and Mortensen, 2002; Olesen and Parner, 2006). Readmissions are a proxy measure of symptomatic exacerbation. When studying readmission risk, it is appropriate to account for the possible presence of a sub-group characterized by high readmission rates (Olesen and Mortensen, 2002). Research of hospital admission rates indicates that at the aggregate level there

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is an increase over time, thus suggesting that schizophrenia follows a deteriorating course. Some research, however, suggests that this is due to a small sub-group with a very poor course (Olesen and Mortensen, 2002).

Clarifying the course of the patients with high readmission rates appears to be relevant from a public health perspective since patients with schizophrenia occupy approximately one-quarter of all psychiatric hospital beds and represent about half of admissions to hospital (Mueser and McGurk, 2004). At present, however, the proportion of patients in the population whose course of readmission is marked by deterioration or amelioration, to our knowledge, is not documented. It appears possible, however, to document the course of readmission in the population by change in hospitalization rates over time.

The current study aims to distinguish between suggestions that the course of schizophrenia is characterized by (a) amelioration, (b) deterioration, or (c) stability. To compare these positions a cluster analysis was conducted to classify patients based on their lengths of hospitalization and a descriptive classification of change in the course was conducted. Approximate patterns of readmission by change are reported. This study, undertaken in Israel, resembles similar research undertaken in Denmark as it relies on population-based data from a national registry (Mortensen and Eaton, 1994; Munk-Jørgensen et al., 1991; Olesen and Mortensen, 2002).

2. Methods

2.1. Participants

2.1.1. Case registry

The Israeli National Psychiatric Case Registry contains a complete listing of psychiatric hospitalizations in Israel, and includes the ICD-9 (World Health Organization, 1977) diagnoses assigned at admission and discharge by an Israeli medical board-certified psychiatrist. Diagnoses recorded in earlier ICD codes are routinely updated by the registry. All in-patient psychiatric hospital admissions and discharges in Israel, including those to non-psychiatric hospitals, are required by law to be reported by the facility to the Ministry of Health to be recorded in the registry. Reporting is monitored by a special department at the Ministry of Health that verifies compliance with reporting, the consistency of information, and the completeness and correctness of the data in the registry. Registry diagnoses have shown acceptable levels of sensitivity and specificity, when measured against research diagnosis (Weiser et al., 2005), and acceptable reliability, as indicated by the stability of the diagnosis over time (Rabinowitz et al., 1994). Accordingly, through the

National Psychiatric Case Registry it was possible to identify *all* hospitalized cases of broadly defined schizophrenia, including schizophreniform, schizoaffective, schizotypal, delusional disorders and non-affective psychoses. This study was approved by the local institutional review board.

2.1.2. Population

The population consisted of all 6865 first admission patients to any Israeli psychiatric facility with a diagnosis of schizophrenia (ICD-9 295) during the period between 1978 and 86 and who maintained this diagnosis at their last registry entry, either at admission or discharge until 1996. This diagnosis largely corresponds to those used in other registry analyses (Munk-Jørgensen et al., 1991). The data were scanned for typological and missing values. Persons with missing values on age of first admission ($n=23$) were excluded from analysis. For consistency with the ICD-9 and DSM-III-R diagnostic criteria, those with an age of first admission below 15 and over 60 were excluded from the analysis ($n=190$). A total of 354 were removed since they died before the end of the 10 year follow-up and a further 348 were removed since their initial hospitalization exceeded a year thus their removal resulted in equal follow-up times. Collectively, this resulted in 5990 patients with 10 years of follow-up. Further descriptive parameters of this population are documented elsewhere (Rabinowitz and Fennig, 2002; Rabinowitz et al., 2006).

2.1.3. Analysis

To examine whether the course of schizophrenia is more appropriately characterized by deterioration,

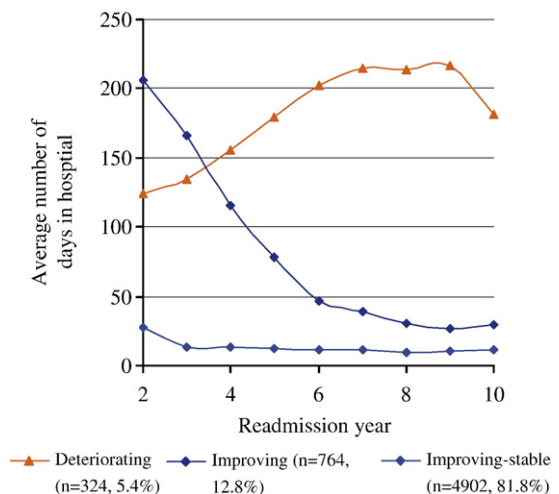


Fig. 1. Cluster analysis of days in readmission per year since first hospital admission.

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