



ELSEVIER

Contents lists available at ScienceDirect

Psychiatry Research

journal homepage: www.elsevier.com/locate/psychres

Identification of psychopathological course trajectories in schizophrenia

Markus Jäger^{a,*}, Prisca Weiser^a, Thomas Becker^a, Karel Frasch^a, Gerhard Längle^{b,c}, Daniela Croissant^d, Tilman Steinert^{e,f}, Susanne Jaeger^{e,f}, Reinhold Kilian^a^a Ulm University, Department of Psychiatry and Psychotherapy II, BKH Günzburg, Ludwig-Heilmeyer-Str. 2, 89312 Günzburg, Germany^b Zentrum für Psychiatrie Südwürttemberg, Bad Schussenried, Germany^c Department of Psychiatry and Psychotherapy, University of Tübingen, Tübingen, Germany^d PP.r.t Hospital for Psychiatry, Psychotherapy and Psychosomatics, Reutlingen, Germany^e Ulm University, Department of Psychiatry and Psychotherapy I, Ravensburg, Germany^f Zentrum für Psychiatrie Südwürttemberg, Weissenau, Ravensburg, Germany

ARTICLE INFO

Article history:

Received 16 November 2012

Received in revised form

27 November 2013

Accepted 30 November 2013

Available online 7 December 2013

Keywords:

Schizophrenia

Course

Trajectories

PANSS

ABSTRACT

Course trajectory analyses have been performed primarily for treatment response in acute episodes of schizophrenic disorders. As yet, corresponding data for the long-term course are lacking. Within a multicenter prospective observational study, 268 patients with schizophrenia were assessed at discharge from hospital and followed up after 6, 12, 18, and 24 months. A latent class growth analysis was performed on the scores from the Positive and Negative Syndrome Scale (PANSS). A two-class conditional latent class model showed the best data fit (Entropy: 0.924). The model divided the sample into a group with amelioration in all PANSS subscales (60%) and a group with stable positive/negative and deteriorating general psychopathology symptoms (40%). Global functioning (GAF score), gender, age, living situation and involuntary admission predicted course trajectory class membership. The model was predictive of significant differences between the two groups in health care service costs and quality of life. The results underline the heterogeneous course of the illness, which ranged from amelioration to deterioration over a 2-year period. Statistical models such as trajectory analysis could help to identify more homogenous subtypes in schizophrenia.

© 2013 Elsevier Ireland Ltd. All rights reserved.

1. Introduction

Schizophrenia is a heterogeneous disorder (Picardi et al., 2012; Lang et al., 2013). The identification of subgroups with a differential course and outcome is an important challenge for psychiatric research (Andreasen, 2006). Such a subdivision could improve the individual treatment of schizophrenia (Correll et al., 2011). As yet, several attempts have been made to establish a course typology of schizophrenic disorders (Bleuler, 1978; Leonhard, 1979; Crow, 1980; Huber et al., 1980; Watt et al., 1983). However, these traditional course typologies are based merely upon clinical judgment.

More recently, empirical research has been performed with standardized instruments and statistical models such as cluster analysis or latent regression modeling. For example, Burti et al. (2009) identified five course patterns in schizophrenic disorders that correlated with the DSM-IV course specifiers (APA, 1994), and

Levine et al. (2011) described four groups. However, the information on hospitalizations or psychotic episodes used in these analyses was obtained from retrospective assessments or case register data. As yet, most trajectory analyses of prospective psychopathological data from instruments such as the Positive and Negative Syndrome Scale (PANSS) or the Scale for the Assessment of Negative Symptoms (SANS) are limited to the acute treatment episode of schizophrenic disorders (Levine and Leucht, 2010; Levine and Rabinowitz, 2010; Case et al., 2011; Stauffer et al., 2011; Schennach et al., 2012; Levine and Leucht, 2013). Only a few studies have examined the course of illness over a longer period. Levine et al. (2010) identified five different trajectories of treatment response over a 2-year period; all five groups were characterized by amelioration over the longer course of illness. However, these data are limited to patients suffering from recent-onset psychoses and stem from a randomized controlled trial with rigid inclusion criteria. Furthermore, Levine et al. (2012) reanalyzed data of the CATIE study and identified three course trajectories in the entire sample. These results need further validation.

Against this background, the present study examined the course of psychopathological symptoms over a 2-year period in

* Corresponding author. Tel.: +49 82 21 96 2204; fax: +49 82 21 96 2737.
E-mail address: Markus.Jaeger@bkh-guenzburg.de (M. Jäger).

patients from a prospective observational study on antipsychotic drug treatment of schizophrenic disorders in routine psychiatric care. The aims were (i) to identify psychopathological course trajectories, (ii) to search for variables predicting course trajectory class membership, and (iii) to examine the association of class membership with patient quality of life and costs of psychiatric service use.

2. Methods

2.1. Subjects

The sample stems from a multicenter prospective observational study (ELAN: “Effects of Long-term Atypical Neuroleptic Treatment under Routine Conditions” study) that followed patients with schizophrenia or schizoaffective disorders for 2 years after discharge from psychiatric inpatient treatment (Frasch et al., 2012; Kilian et al., 2012; Längle et al., 2012). The primary aim of the ELAN study was to examine whether antipsychotic maintenance therapy with quetiapine is more effective than treatment with olanzapine or risperidone. Patients were recruited in 2005 and 2006 and data collection was continued until December 2008. Baseline assessments were conducted in the week before hospital discharge and follow-up assessments were performed after 6, 12, 18, and 24 months.

Inclusion criteria were a diagnosis of schizophrenia or schizoaffective disorder, an age of 18 years or older, and a recommendation for at least 12 months' antipsychotic maintenance treatment. Patients qualified for study inclusion if they were administered quetiapine, olanzapine, or risperidone in routine clinical treatment; each of these drugs could be administered either as monotherapy or in combination with other psychotropic drugs. Medication changes and discontinuation of treatment were permitted at any time. Exclusion criteria comprised substance dependence, an organic psychiatric disorder, and developmental disability. Eligible study participants were selected on the basis of inpatient admission files at nine psychiatric hospitals in South Germany. In the recruitment process, study workers established compatibility with inclusion criteria by using a standardized screening procedure. Patients were only included in the study after providing informed consent. The study protocol was approved by the local ethics committees.

Five hundred and thirty patients were eligible for inclusion and asked to participate in the study; 156 patients (29%) refused to participate. This group was significantly younger than those who participated and had fewer inpatient episodes and a lower rate of schizoaffective disorder diagnoses. A total of 374 patients agreed to participate and gave informed consent. Patients with a diagnosis of schizoaffective disorder ($n=106$, 28.3%) were excluded from the analyses because the nosological status of schizoaffective disorder is quite ambiguous (Jäger et al., 2011). Therefore, 268 patients were included in the final analyses. The sample characteristics (baseline and follow-up assessments) are presented in Table 1. Comparisons of the baseline sample characteristics with each follow-up sample found no systematic differences and confirmed the missing at random assumption.

2.2. Assessments

Diagnoses were derived from the International Diagnosis Checklists (IDCL) for ICD-10 (Hiller et al., 1993). This instrument consists of 30 symptom lists in pocket form for the most common psychiatric diagnoses and allows an operationalized diagnostic decision with a high reliability.

Psychopathological characteristics were assessed with the PANSS (Kay, 1991). The PANSS, a widely used 30-item scale for assessing schizophrenic symptoms, is composed of three subscales: positive symptoms, negative symptoms, and general psychopathology (Kim et al., 2012).

Functional capacity was measured with the Global Assessment of Functioning (GAF) scale from DSM-IV (APA, 1994); quality of life, with the Lancashire Quality of Life Profile, LQoLP-EU (Gaité et al., 2000); and Cognitive Processing Speed (CPS), with the Digit Symbol Coding subtest from the Wechsler Adult Intelligence Scale WAIS (Kaufman and Lichtenberger, 2002). Information about psychiatric service use, including consumption of psychotropic medication, was obtained by means of

the Client Sociodemographic and Services Receipt Inventory (CSSRI) (Chisholm et al., 2000). This instrument was developed to measure the mental health service utilization and costs, and it covers the domains “sociodemographics”, “usual living situation”, “employment and income”, “service receipt” and “medication profile” (Chisholm et al., 2000). The CSSRI allows estimating the costs of psychiatric care (Roick et al. 2001).

All assessments were conducted by study staff trained in the use of the study instruments. Rater trainings for the PANSS were performed by clinical experts (Kilian et al., 2012).

2.3. Statistical analyses

To identify latent heterogeneity in the growth processes of the PANSS subscales for positive symptoms, negative symptoms, and general psychopathology, we conducted a Latent Class Growth Analysis (LCGA) as a special form of the general mixture model (GMM) (Matschinger et al., 2006). The number of latent classes was determined by comparing the Bayesian Information Criterion (BIC), the measure of Entropy (E), and the Lo-Mendel-Rubin adjusted Likelihood Ratio Test (LMR-LRT) (Lo et al., 2001; Matschinger et al., 2006; Jung and Wickrama, 2008). A lower BIC value indicates a better model fit (Muthén, 2004; Muthén and Muthén, 2010). E varies between 0 and 1, and a value of $E > 0.8$ indicates a sufficient probability (Muthén, 2004). The LMR-LRT provides a statistic for improving the fit of a model with k classes in comparison to a model with $k-1$ classes (Lo et al., 2001).

The model was extended to a Conditional Latent Class Growth Analysis (CLCGA) to examine the effects of patients' baseline characteristics on class membership. The following baseline characteristics were included in the CLCGA: gender; age; having a partner; living in one's own apartment; lower education level; involuntary admission to psychiatric hospital; number of previous inpatient episodes; number of suicide attempts; the General Assessment of Functioning (GAF) score; Cognitive Processing Speed (CPS) test score; and treatment group (quetiapine, olanzapine, risperidone). To examine the association of class membership with subjective quality of life, we computed linear random effects regression models with random intercepts and fixed effects of class membership on the overall quality of life score and the health-related quality of life subscale from the LQoLP-EU as dependent variables. LQoLP-EU scales were transformed to a range between 1 and 7, where 1 indicates the lowest quality of life; and 7 the highest.

To examine the relationship of class membership to health care service costs, we computed linear random effects regression models with random intercepts and fixed effects of class membership on the direct and indirect 6-month costs of mental illness and on the total costs of medical treatment. Nonparametric bootstrapping was applied to estimate the standard errors, to correct for deviation from normal distribution in the cost data.

CLCGA was conducted with MPLUS 6 (Muthén and Muthén, 2010), and random effects regression models were computed by using the xtlogit and xtreg procedures of STATA 12.

3. Results

3.1. Identification of latent classes in psychopathological course trajectories

As indicated by the model fit parameters for the CLCGA (Table 2), the BIC improved with the number of classes from 31421.7 for the one-class model to 19453.4 for the three-class model. The LMR-LRT for the two-class model revealed that this model has a better fit than the one-class model (LMR-LRT = 1186.7; $p=0.000$). However, the three-class model failed to show a better fit than the two-class model (LMR-LRT = 252.5; $p=0.353$). The comparison of the entropy values suggested that class membership can be better predicted for the two-class model ($E=0.924$) than for the three-class model ($E=0.897$).

Table 1
Sample characteristics.

	Baseline	6 months	12 months	18 months	24 months
N (%)	268 (100)	229 (85)	228 (85)	216 (81)	216 (81)
Age (years, S.D.)	38.8, \pm 12.4	38.9, \pm 12.4	38.7, \pm 12.4	39.1, \pm 12.2	38.8, \pm 12.1
Female gender (%)	41.8	41.5	40.4	43.1	42.1
Global functioning (GAF-value, S.D.)	54.6, \pm 12.7	58.2, \pm 14.5	59.0, \pm 15.0	60.0, \pm 16.2	60.1, \pm 16.4

GAF: Global Assessment of Functioning.

Download English Version:

<https://daneshyari.com/en/article/333045>

Download Persian Version:

<https://daneshyari.com/article/333045>

[Daneshyari.com](https://daneshyari.com)