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Factors contributing to the duration of untreated psychosis

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ABSTRACT

Background: Shortening the duration of untreated psychosis (DUP) – with the aim of improving the prognosis of psychotic disorders – requires an understanding of the causes of treatment delay. Current findings concerning several candidate risk factors of a longer DUP are inconsistent. Our aim was to identify factors contributing to DUP in a large sample that represents the treated prevalence of non-affective psychotic disorders.
Method: Patients with a non-affective psychotic disorder were recruited from mental health care institutes from 2004 to 2008. Of the 1120 patients enrolled, 852 could be included in the present analysis. Examined candidate factors were gender, educational level, migration status, premorbid adjustment and age at onset of the psychotic disorder. DUP was divided into five ordinal categories: less than one month, one month to three months, three months to six months, six months to twelve months and twelve months and over. An ordinal logistic regression analysis was used to identify the risk factors of a longer DUP.
Results: Median DUP was less than one month (IQR 2). The factors migration status ($p = 0.028$), age at onset of the psychotic disorder ($p = 0.003$) and gender ($p = 0.034$) were significantly associated with DUP in our analysis.
Conclusion: First generation immigrant patients, patients with an early onset of their psychotic disorder and male patients seem at risk of a longer DUP. These findings can assist in designing specific interventions to shorten treatment delay.

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1. Introduction

The duration of untreated psychosis (DUP) is defined as the time from the emergence of the first psychotic episode to the initiation of adequate treatment. DUP can last days, months or even years (Marshall et al., 2005). A longer DUP is associated with worse short-term (Marshall et al., 2005; Perkins et al., 2005) and long-term outcomes (Bottlender et al., 2003; Crumlish et al., 2009; Boonstra et al., 2012a). The potential of DUP being modifiable raises the possibility of improving outcome by shortening DUP. In designing interventions to shorten DUP, it is important to identify factors contributing to DUP.

Factors previously associated with a longer DUP include stigma-related concerns (Corrigan, 2004; Tanskanen et al., 2011), an insidious mode of onset (Morgan et al., 2006; Compton et al., 2008) and a diagnosis of non-affective psychosis compared with affective psychosis (Morgan et al., 2006; Bechard-Evans et al., 2007; Schimmelmann et al., 2008).

Inconsistent results have been reported for the association between DUP and several other factors. Concerning gender, even though studies continue to show that men have (a tendency for) a longer DUP compared with women (Chang et al., 2011; Fridgen et al., 2012), a review could not confirm the association (Cascio et al., 2012). Also inconsistent are the findings with respect to the association between DUP and educational level: longer DUP was found to be associated with a higher level (Chong et al., 2005), a lower level (Verdoux et al., 1998) and not with educational level at all (Morgan et al., 2006;

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Bechard-Evans et al., 2007; Compton et al., 2008, 2011). Most studies did not find an association between DUP and ethnicity (Anderson et al., 2013). Interestingly however, three recent studies reported an association between DUP and migration status (Sterk et al., 2010; Boonstra et al., 2012b; Nerhus et al., 2013). Furthermore, inconsistent results have been reported with respect to the association between DUP and overall premorbid adjustment (Chen et al., 2005; versus Harrigan et al., 2003; Schimmelmann et al., 2008) and the association between DUP and age at onset of the psychotic disorder (Bechard-Evans et al., 2007; Schimmelmann et al., 2008; versus Drake et al., 2000; Morgan et al., 2006). Notably, many previous studies examining DUP had relatively small sample sizes, a mixed sample of patients with affective and non-affective psychotic disorders and a substantial variation in definition of DUP.

Given the importance of knowledge concerning the factors associated with DUP, the inconsistency of previous findings and the limitations of previous research, the association between DUP and candidate risk factors needs further elucidation. The aim of this study was to identify risk factors of a longer DUP in a large sample that represents the treated prevalence of non-affective psychotic disorders. Specifically, we aimed to test the hypothesis that being an immigrant, having a poor premorbid adjustment and having an earlier age at onset of the psychotic disorder are associated with a longer DUP. Furthermore, we hypothesized that gender and educational level are not associated with DUP.

2. Methods

2.1. Study design and population

Data were extracted from the baseline assessments of a longitudinal, multi-site, naturalistic cohort study: the Genetic Risk and Outcome of Psychosis (GROUP) study (data release 3.02). Patients were recruited from mental health care institutes in selected representative geographical areas in the Netherlands and Belgium. They were identified through clinicians, whose caseloads were screened for inclusion criteria. Subsequently, patients presenting consecutively at these services either as outpatients or inpatients were recruited. Inclusion criteria for patients were: 1) age range of 16 to 50 years; 2) diagnosis of a non-affective psychotic disorder, according to the Diagnostic and Statistical Manual of Mental Disorders Fourth Edition (DSM-IV) criteria; and 3) good command of the Dutch language. The GROUP study protocol was approved centrally by the Ethical Review Board of the University Medical Centre Utrecht, and subsequently by local review boards of each participating institute. Informed consent was obtained from all participants after complete description of the study and before the start of the first assessment. Detailed information about the GROUP study is published elsewhere (Korver et al., 2012).

The GROUP sample consisted of 1120 patients, of which 852 could be included in the present study. Reasons for and numbers of exclusion were the following: 1) 19 patients were excluded because of a final diagnosis other than a non-affective psychotic disorder; 2) 226 patients were excluded because DUP could not be calculated, as data were incomplete; and 3) 23 patients were excluded because their calculated DUP was longer than the recorded duration of the first psychotic episode, meaning data were incorrect.

2.2. Definitions and measures

To establish the DSM-IV diagnosis of a non-affective psychotic disorder two structured diagnostic instruments were used, in accordance with the standard practice in the study sites: the Comprehensive Assessment of Symptoms and History (CASH) (Andreasen et al., 1992) and the Schedules for Clinical Assessment for Neuropsychiatry (SCAN 2.1) (Wing et al., 1990). All raters had completed training in the instruments and diagnostic consensus was achieved in the presence of an independent psychiatrist.

Information regarding DUP was assessed with the Life Chart Schedule (LCS) (Sartorius et al., 1996) by clinically trained interviewers. DUP was defined as the number of months from the onset of the first psychotic episode to the initiation of appropriate treatment for this episode. The first psychotic episode was defined as the first period in which hallucinations, delusions and/or clear disorganized speech or thinking were present for at least one week, according to criteria by the CASH or SCAN. Appropriate treatment, the end-point for DUP, was defined as the use of antipsychotic medication and/or regular treatment contact with a mental health professional for psychosis. The starting month and year of receiving medication or initiation of treatment contact was noted — whichever started first. When treatment was started before the onset of the first psychotic episode, this resulted in a negative DUP. This can happen in case treatment is started during the prodromal phase. These negative values were truncated to zero values.

The following variables were considered as candidate factors contributing to DUP: gender, educational level, migration status, premorbid adjustment and age at onset of the psychotic disorder.

Educational level was based on a subdivision by Verhage (Verhage, 1964) and ranged from zero (no education) to eight (university degree). Together the subdivisions of lower, higher and pre-university secondary education bear resemblance with internationally well-known secondary education. The three types of vocational education should be regarded as “universities of professional education”.

Migration status was defined as follows: when a patient and at least one of the parents were born abroad, the patient was classified as a first generation immigrant. When a patient was born in the Netherlands or Belgium and at least one of the parents was born abroad, the patient was classified as a second generation immigrant. All other patients were considered as natives.

The Premorbid Adjustment Scale (PAS) (Cannon-Spoor et al., 1982) was used to determine premorbid adjustment. PAS is designed to evaluate the levels of functioning at several periods of a subject's life, before the onset of the psychotic disorder. It covers sociability and withdrawal, peer relationships, scholastic performance, adaption to school and capacity to establish socio-sexual relationships. For analyses a PAS overall score was used, calculated by averaging the period scores – before onset of the psychotic disorder – per patient.

Age at onset of the psychotic disorder was, like information regarding DUP, assessed by using the LCS.

2.3. Statistical analysis

Patient's characteristics were summarized by using descriptive statistics. Differences between the included and excluded patients were tested using Mann–Whitney tests, chi-squared tests and Fisher's exact tests as appropriate. Due to the very high positive skewed distribution of DUP, it was necessary to convert DUP into categories prior to statistical analysis. Because there are no agreed-on cutoff points (Marshall et al., 2005), categorization was based on a combination of cutoff points selected in two previous studies (Harrigan et al., 2003; Chang et al., 2012). DUP was converted into a set of five ordinal categories: less than one month; one month to three months; three months to six months; six months to twelve months; and twelve months and over. An ordinal logistic regression analysis was used to analyze the data.

The full model included all five preselected candidate risk factors, based on literature. We then applied a backward selection procedure to come up to our final model, by eliminating candidate risk factors one by one when p-values for all levels from Type 3 tests were larger than or equal to 0.05. The proportional odds assumption was checked for the final model.

Analyses were conducted using Statistical Analysis System (SAS Institute Inc., Cary, NC). The level of significance was set at 0.05.

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