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Long-term employment among people at ultra-high risk for psychosis

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ABSTRACT

Background: Psychotic disorders are associated with high rates of sustained unemployment, however, little is known about the long-term employment outcome of people at ultra-high risk (UHR) of developing psychosis. We sought to investigate the long-term unemployment rate and baseline predictors of employment status at follow-up in a large UHR cohort.

Method: 268 UHR patients recruited from the Personal Assessment and Crisis Evaluation clinic in Melbourne, Australia were followed-up over 2–14 years after initial presentation to the service. Individuals in no form of employment or education were classed as unemployed. Logistic regression analyses were used to examine predictors of employment outcome.

Results: A high rate of unemployment was present at follow-up in this UHR sample (23%). At baseline, those who were unemployed at follow-up had a longer duration of untreated illness, more severe negative symptoms, lower IQ, poorer social and occupational functioning and reported more childhood trauma than the employed group. At follow-up, unemployed individuals exhibited significantly more severe symptoms on all measures and were more likely to have been diagnosed with a mood, anxiety, psychotic or substance use disorder. Childhood trauma and the duration of untreated illness at baseline were significant independent predictors of employment status at follow-up in the multivariate analyses.

Conclusions: Nearly a quarter of this UHR sample was unemployed at long-term follow-up. The duration of untreated illness and the effects of childhood trauma are potentially modifiable risk factors for long-term employment outcome in this group. Vocational support may be beneficial for many UHR patients presenting to services.

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1. Introduction

Psychotic disorders such as schizophrenia are associated with high rates of sustained unemployment (Marwaha and Johnson, 2004; Marwaha et al., 2007; Waghorn et al., 2012). In an effort to reduce this, there is a growing international consensus that vocational support should be offered for these patients (Kreyenbuhl et al., 2010; National Institute for Health and Care Excellence, 2014; Galletly et al., 2016). In England, mental health services are now required to assist patients with first-episode psychosis to engage in employment, education or training as part of the new 'Early Intervention in Psychosis Access and Waiting Time standards' (NHS England, 2016). As well as reducing the

high societal cost of these disorders (Knapp et al., 2004), employment is thought to improve the general wellbeing of people with psychosis and is widely considered to be an important aspect of recovery (Rinaldi et al., 2010; Ramsay et al., 2011).

In contrast, little is known about the long-term employment outcome of young people who are at ultra-high risk (UHR) of developing a psychotic disorder (Yung et al., 1996, 1998; Fusar-Poli et al., 2013a). This is a group for whom similar provision of resources may be important. At presentation to services, UHR patients are significantly more likely to be unemployed compared to their peers (Fusar-Poli et al., 2010), with reports suggesting up to 46% are not in employment, education or training (Fusar-Poli et al., 2013b). However, data on employment outcome in this population is limited to only a few short-term follow-up studies (Velthorst et al., 2011; Salokangas et al., 2013). To our knowledge, no studies have examined the long-term unemployment rate or baseline predictors of employment outcome in the UHR group.

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The aims of the current study were;

1. To examine the rate of unemployment among a large UHR cohort at long-term follow-up
2. To determine which clinical and demographic baseline variables were the strongest predictors of employment status at follow-up

2. Method

2.1. Participants

The current data are part of a longitudinal study that aimed to reassess all UHR individuals who took part in research at the PACE (Personal Assessment and Crisis Evaluation) clinic in Melbourne, Australia between 1993 and 2006 ($n = 416$). At baseline, participants were aged 15–30 years and met UHR criteria rated according to the Comprehensive Assessment of At-Risk Mental States (CAARMS; Yung et al., 2005). Follow-up assessments were conducted between 2007 and 2009. The full sample has been described in detail elsewhere (Nelson et al., 2013). This study reports data from 268 patients who underwent face-to-face interview at follow-up and completed a comprehensive battery of clinical and demographic measures. Follow-up assessments were conducted between 2.39 and 14.87 years (mean = 7.43; $SD = 3.27$) after identification as UHR. The study was approved by the local research ethics committee. All participants provided written informed consent.

2.2. Procedure and assessments

The primary outcome was occupational status at follow-up, which was assessed at the follow-up interview. All demographic and clinical symptom measures were conducted at baseline and follow-up. The total CAARMS positive symptom score was calculated by combining scores from the following subscales: disorders of thought content, perceptual abnormalities, conceptual disorganisation and motor disturbances. The CAARMS negative symptom score was calculated by combining the following subscales and basic symptom items: disorders of concentration, attention and memory, disorders of emotion and affect, subjectively impaired energy and impaired tolerance to normal stress (Yung et al., 2005). Positive psychotic symptoms were also assessed using the Brief Psychiatric Rating Scale (BPRS; Overall and Gorham, 1962) psychotic subscale. Negative symptoms were assessed using the Scale for the Assessment of Negative Symptoms (SANS; Andreasen, 1984). Depression and anxiety were measured with the Hamilton Rating Scale for Depression (HAM-D) and Hamilton Rating Scale for Anxiety (HAM-A), respectively. UHR criteria and duration of untreated illness (DUI) were recorded at baseline using the CAARMS. DUI was calculated based on the duration between the first noted change from premorbid state, determined using all available information (self-report and informant report), and date of acceptance into the PACE clinic, as described and operationalised in the CAARMS instrument (Yung et al., 2005). Social and occupational functioning both at baseline and follow-up were assessed using the 'interpersonal relations' and 'instrumental role' subscales of the Quality of Life Scale (QLS; Heinrichs et al., 1984). IQ was assessed at baseline and follow-up using a variety of validated measures previously described in detail elsewhere (Lin et al., 2011). History of childhood maltreatment was assessed using the brief Childhood Trauma Questionnaire (CTQ; Bernstein et al., 2003).

Transition status was defined as the development of full threshold psychotic disorder at any time over the follow-up period. Mood, anxiety and substance use disorders were also assessed at baseline and follow-up using the Structured Clinical Interview for DSM-IV (SCID).

2.3. Data analysis

All analyses were performed using SPSS statistical software (IBM SPSS Statistics for Windows, Version 22.0. Armonk, NY: IBM Corp).

Two employment outcome groups were created. The 'Employed' group comprised those individuals who were in paid employment (full- or part-time) and/or were students (many of whom were also employed) at the follow-up assessment. If an individual was not in any form of employment, education or training then they were classed as 'Unemployed'. Those who identified as 'homemakers' (e.g. parents or carers) were not included in the analyses. Group differences in clinical and demographic variables were assessed at baseline and follow-up. Continuous and categorical variables were examined using independent samples t -tests and chi-square tests respectively.

Hierarchical logistic regression models were used to examine predictors of employment status at follow-up. Baseline variables that differed between the two groups ($p < 0.20$) were included as predictors. Information on employment status at baseline was only available for a subset (58.5%) of patients. We therefore performed two sets of analyses, one using all patients with employment data at follow-up ($n = 246$) and another in the subset with employment data at both baseline and follow-up ($n = 144$). Baseline QLS occupational functioning scores were used as a proxy for baseline employment in the main analyses. The point-biserial correlation coefficient between these variables in the subsample of patients with both measures was strong ($r_{pb} = 0.67$). Variables were entered into the multivariate analyses in the following blocks: (1) sex, age and IQ at baseline, history of childhood trauma; (2) symptoms at baseline; (3) functioning at baseline; (4) follow-up duration and transition status at follow-up. We also re-ran the final block including a variable indicating the presence of any psychiatric diagnosis at follow-up (instead of only transition to psychosis) to examine whether this had an impact on the multivariate model. Bivariate correlations were computed to examine collinearity between baseline variables prior to their inclusion. Model fit was assessed using the Nagelkerke R^2 statistic.

3. Results

3.1. Employment rate

At follow-up, 92 individuals (34.3%) were in full-time employment, 58 (21.6%) were employed part-time or as casual workers, 34 (12.7%) were students, 22 (8.2%) identified as homemakers and 62 (23.1%) were unemployed.

3.2. Group differences at baseline and follow-up

Group differences at baseline and follow-up between those categorised as 'Employed' ($n = 184$) or 'Unemployed' ($n = 62$) at follow-up are provided in Table 1. At baseline, those who were unemployed at follow-up had a longer DUI, more severe negative symptoms, lower IQ, and reported more childhood trauma than the employed group. Those who were unemployed at follow-up also had significantly poorer social and occupational functioning at baseline. However, age, depression, anxiety, level of education and the proportion of males were similar in both groups. There were also no group differences at baseline in the proportion of participants who had been diagnosed with an anxiety, mood or substance use disorder.

Among those patients with baseline employment status data; 22 of 113 (19.5%) who were employed at follow-up and 12 of 31 (38.7%) who were unemployed at follow-up were unemployed at baseline ($\chi^2 = 4.993$, $df = 1$, $p = 0.025$).

Over the follow-up period, 69 participants (25.7% of the sample) developed a full-threshold psychotic disorder. A significantly higher proportion of participants in the unemployed group had developed a psychotic disorder compared to the employed group. At follow-up, unemployed individuals exhibited significantly more severe symptomatology on all measures and higher rates of anxiety, mood and substance use disorders.

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