Social environmental risk factors for transition to psychosis in an Ultra-High Risk population

Brian O'Donoghue [a,b,f,*], Barnaby Nelson [a,c], Hok Pan Yuen [a,c], Abbie Lane [b], Stephen Wood [d,e], Andrew Thompson [g], Ashleigh Lin [g], Patrick McGorry [a,c], Alison R. Yung [a,h]

[a] Orygen Youth Health Research Centre, 35 Poplar rd, Parkville, Victoria, Australia
[b] University College Dublin, Belfield, Dublin 4, Ireland
[c] University of Melbourne, Parkville, Victoria, Australia
[d] School of Psychology, University of Birmingham, Birmingham, UK
[e] Melbourne Neuropsychiatry Centre, Department of Psychiatry, University of Melbourne, Victoria, Australia
[f] Division of Mental Health and Wellbeing, University of Warwick, UK
[g] Telethon Kids Institute, The University of Western Australia, Australia
[h] Institute of Brain, Behaviour and Mental Health, University of Manchester, Manchester, UK

ARTICLE INFO

ABSTRACT

Objective: Despite social environmental factors such as deprivation, urbanicity, migration and adversity being established risk factors for psychotic disorders, there is a paucity of knowledge on the influence of social environmental risk factors in the UHR population. Firstly, we aimed to investigate the association between social deprivation and risk of transition and secondly, we aimed to investigate the association between migration status and the risk of transition.

Method: UHR individuals at the Personal Assessment and Crisis Evaluation (PACE) service in Melbourne were included. Social deprivation as assessed according to postal code area of residence was obtained from census data and Cox regression analysis was used to calculate hazard ratios.

Results: A total of 219 UHR individuals were included and over the median follow-up time of 4.8 years, 32 individuals (14.6%) were known to have transitioned to a psychotic disorder. 8.8% of UHR individuals were first generation migrants and 41.9% were second generation migrants. The level of social deprivation was not associated with the risk of transition (p = 0.83). Similarly, first or second generation migrants did not have an increased risk of transition to psychosis (p = 0.84).

Conclusions: Despite being established risk factors for psychotic disorders, social deprivation and migrant status have not been found to increase the risk of transition in a UHR population.

© 2014 Elsevier B.V. All rights reserved.

1. Introduction

Over the last two decades, significant progress has been made in prospectively identifying the symptoms and characteristics of the prodromal phase of psychotic disorders (Yung and Nelson, 2011). This has resulted in the ability to identify individuals at higher risk of psychosis compared to the general population, with over one third of these 'clinical high risk' individuals subsequently developing a psychotic disorder within three years (Fusar-Poli et al., 2012). The ultimate purpose in identifying this group is to prevent the first episode of psychosis and a recent meta-analysis has demonstrated provisional success on this front, with the overall effect of diverse interventions, specifically, CBT, omega-3 fatty acids and antipsychotic medications, having a risk reduction of 54% at 12 months with a number needed to treat of 9 (van der Gaag et al., 2013). Further factors that may influence the risk of progression to a psychotic disorder in UHR populations have been identified, specifically low functioning, longer duration of symptoms (Nelson et al., 2013) and unusual thought content such as suspiciousness (Cannon et al., 2008; Ruhrmann et al., 2010; Thompson et al., 2011). Cognitive deficits, a core feature of schizophrenia, are more prevalent in UHR individuals compared to healthy controls and are associated with a higher risk of transition to psychotic disorders (Bora et al., 2014). Neuroimaging studies have identified that people who are UHR for psychosis show some brain alterations in comparison to healthy controls, but there is a lack of consistent findings as to which of these alterations is associated with transition to psychosis (Wood et al., 2013). Genetics studies may also contribute to predicting those at higher risk of psychotic disorders, with certain genetic variations, such as in neuregulin 1, increasing the risk of transition in the UHR population (Bousman et al., 2013). However, while there appears to be a wide

range of factors associated with transition to psychotic disorders in the UHR population, the findings of a number of these factors are yet to be replicated.

Despite the established association between psychotic disorders and social environmental risk factors, such as social deprivation, urbanicity, migrant status and social adversity (Morgan et al., 2008; Kelly et al., 2010; Kirkbride et al., 2012), there is a paucity of research in this area in the UHR population. In the Netherlands, Dragt et al. found that UHR individuals living in an urban environment or receiving state benefits were more likely to transition to psychosis (Dragt et al., 2011). Furthermore, the study found that ethnicity, birth place, obstetrical complications and employment status were not associated with an increased risk of transition. Velthorst et al. identified that UHR individuals from ethnic minorities presented with more negative symptoms and depression (Velthorst et al., 2009). Adversity in early life, specifically the experience of childhood sexual trauma, has been demonstrated to be associated with an increased risk of transition to psychotic disorders in the UHR population (Thompson et al., 2014).

The continuum model, which proposes that psychosis exists on a continuum throughout the general population, has gained substantial support, with a prevalence of psychotic like experiences in non-clinical general population samples of approximately 5% (van Os et al., 2009). Interestingly, the social environmental risk factors for psychotic disorders, such as ethnicity, social disadvantage, urbanity and low socioeconomic status, are also risk factors for psychotic like experiences in the general population (van Os et al., 2000; Johns et al., 2002; Scott et al., 2006; Morgan et al., 2009). It appears that the risk factors for psychosis and schizophrenia mirror some of the risk factors for the prevalence of psychotic-like experiences in the general population. This highlights the importance of establishing at what point in the illness trajectory the social environmental factors influence the disorder. Establishing whether social environmental risk factors are associated with transition to a psychotic disorder in the UHR population could lead to valuable insights into the aetiology of psychotic disorders.

1.1. Aims of the study

In this study, we firstly aimed to determine whether the level of social deprivation at the time of presentation was associated with an increased risk of transition to a psychotic disorder. Secondly, we aimed to investigate whether migration status was associated with an increased risk of transitioning to a psychotic disorder.

2. Material and methods

2.1. Setting

The Personal Assessment and Crisis Evaluation (PACE) service is a specialised clinic for individuals assessed to be at Ultra-High Risk (UHR) for psychosis. It is one of the clinics of Orygen Youth Health, a specific youth mental health service for people aged between 15 and 25 years. Orygen Youth Health serves a catchment area of approximately 850,000 people in the inner, mid, north and south Western regions of Melbourne.

2.2. Participants

The PACE clinic accepts young people between the ages of 15 and 25 who fulfil criteria for at least one of the three UHR groups: Attenuated psychotic symptoms (APS), brief limited intermittent psychotic symptoms (BLIPS) and trait and state risk factors (family history of psychotic disorder or schizotypal personality disorder). The UHR criteria are displayed in Table 1. The participants of this study are made up of a sub-group of the PACE 400 study, which is a long-term follow-up study of UHR individuals and the inclusion criteria and participants are described by Nelson et al. The PACE400 study sample consisted of

Table 1
Criteria for Ultra-High Risk (UHR) Criteria.

Group	Criteria
1. Attenuated positive psychotic symptoms (APS)	Presence of one or more of the following: positive symptoms including unusual or non-bizarre ideas such as paranoia, perceptual abnormalities or disorganized speech and thought at a frequency, intensity and duration below the threshold for a psychotic disorder. Symptoms must be present within the past year and have a duration of greater than one week and less than five years.
2. Brief limited intermittent psychotic symptoms (BLIPS)	Presence of transient, frank psychotic symptoms that resolved spontaneously, without antipsychotic medication, within one week. Symptoms must have occurred within the past year.
3. Trait and state risk factors	Presence of a family history of psychosis in a first degree relative or schizotypal personality disorder and.

In addition to the above criteria, to be classified as UHR individuals, there must be a decline in functioning represented by a 30% drop that is maintained for at least a month but is less than five years. Decline in functioning must have occurred within the past year.

all UHR patients who participated in research studies at the PACE clinic between 1993 and 2006. This study included only those subjects between 2000 and 2006 as there was not sufficient information pertaining to the address at the time of presentation in the group prior to 2000.

2.3. Instruments

The Comprehensive Assessment of At-Risk Mental States (CAARMS) (Yung et al., 2005) was used to assess the intensity, frequency and duration of psychotic symptoms and determine whether individuals fulfilled criteria for APS, BLIPS or vulnerability group and it was used to determine the outcome measure of transition to psychosis, as it has clear criteria for the presence of a psychotic disorder. In the circumstances that CAARMS data were not available then state public mental health records were used to determine if the individual had transitioned to a psychotic disorder. The level of functioning at the time of presentation was determined using the Global Assessment of Functioning (GAF) which is scored from 0 to 100 with higher scores representing higher levels of functioning.

2.4. Definitions & sources of interview

To compare the level of social deprivation in different postcode areas Socio-Economic Indexes for Areas (SEIFA) were used. These indexes are produced by the Australian Bureau of Statistics and are based on information from the 2001 Census. There are four indexes available, the index of social disadvantage, the index of socio-economic advantage and disadvantage, the index of education and occupation and the index of economic resources. For the purpose of this study, as it was a specific measure of deprivation, we used the index of socio-economic disadvantage. SEIFA give an arbitrary numerical value (score) that can then be used to compare and rank the relative socio-economic characteristics of areas. The index of socio-economic disadvantage uses the variables that indicate relative socio-economic disadvantage and consists of measures of income, education level, employment, occupation, housing and other measures such as receipt of disability benefits. The score is a weighted combination of these variables of disadvantage which have been standardized to a distribution with a mean of 1000 and standard deviation of 100. Thus a score of 1000 indicates an area with all of the variables equal to the national average. Lower scores represent that an area is more disadvantaged compared to an area of a higher score. The areas were initially ordered into deciles on a continuum from most disadvantaged (lowest score) to least disadvantaged (highest score) within the catchment area of the mental health service