Randomised controlled trial of early detection and cognitive therapy for preventing transition to psychosis in high-risk individuals

Study design and interim analysis of transition rate and psychological risk factors*

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Background There is interest in the possibility of indicated prevention of psychosis. There is a strong case for using psychological approaches to prevent transition to psychosis in high-risk patients.

Aims To identify individuals at high risk of transition to psychosis, and psychological characteristics relevant to the development of psychosis in this group.

Method The design of a randomised controlled trial of cognitive therapy for the prevention of psychosis in people at high risk (meeting operational criteria of brief or attenuated psychotic symptoms, or first-degree family history with functional decline) is outlined. The first patients recruited are compared with non-patient samples on cognitive and personality factors; an interim analysis of transition rate is reported.

Results Cases (n=31) were recruited mainly from primary care. Of the 23 high-risk patients monitored for 6–12 months, 5 (22%) made the transition to psychosis. The high-risk group scored significantly higher than non-patients on measures of schizotypy, metacognitive beliefs and dysfunctional self-schemas (sociotropy).

Conclusions The findings validate the methods of identifying individuals at high risk of experiencing a psychotic episode. Compared with non-patient controls, the cases showed dysfunctional metacognitive beliefs and self-schemas.

Declaration of interest Funded by North-West NHS Executive.

There is a consensus among clinicians that psychotic disorders can be conceptualised using stress vulnerability models, which suggest that inherited vulnerabilities interact with environmental factors to produce psychosis (Zubin & Spring, 1977; Neuchterlein & Dawson, 1984). These models are consistent with Strauss's (1969) hypothesis that psychotic phenomena lie on a continuum with normal processes. Consistent with this viewpoint, epidemiological studies suggest a higher incidence of psychotic phenomena in the general population than expected from studies of psychiatric admissions. For example approximately 5% of the population experience auditory hallucinations (Tien, 1991; van Os *et al*, 2000); and about 9% hold delusional beliefs (van Os *et al*, 2000). There is also evidence that psychotic phenomena can be detected in apparently mentally healthy primary care patients by means of self-report questionnaires. Verdoux *et al* (1998) found that 16% of a large sample (n=462) of primary care patients experienced verbal hallucinations and 26% believed that there was a conspiracy against them. Yung *et al* (1996, 1998) used a combination of state and trait indicators to identify a high-risk sample of whom 40% became psychotic after just 6 months. These findings raise the possibility that individuals prone to psychosis might be detected before they become engaged with traditional psychiatric services and offered treatment to prevent the emergence of a full-blown psychotic illness. However, five of the eight patients who made the transition in their study did so in the first month, suggesting a potential criticism that some patients were already psychotic at initial assessment, but were too suspicious or worried to disclose this. Exclusion of these patients would have reduced their transition rate to 15%.

The Early Detection and Intervention Evaluation (EDIE) trial is the focus of this initial report. The aims of the trial are to identify an indicated high-risk group using Yung *et al*'s criteria and randomly allocate participants to a psychological intervention (cognitive therapy), or a monthly monitoring condition.

We hypothesise that it will be possible to identify indicators of risk that accurately predict transition to psychosis, that a cognitive–behavioural intervention will reduce the rate of transition to psychosis and that the identification of at-risk individuals and subsequent monitoring will reduce the duration of untreated psychosis (DUP). The current report has two aims. First, we wish to establish whether operationally defined at-risk individuals can be ascertained in British health care settings and recruited into a randomised treatment trial, which has not been shown before. Second, it is important to validate the approach by showing that individuals so identified differ from normal controls in psychological characteristics thought to be relevant to the development of psychosis; and also that a significant proportion will go on to develop full psychosis over a follow-up period.

METHOD

The report describes preliminary data from the EDIE trial.

Participants

Recruitment of participants was sought from a variety of sources, which have included: primary care teams (including general practitioners, practice nurses and psychological therapists), student counselling services, accident and emergency departments, specialist services (e.g. community drug and alcohol teams, child and adolescent psychiatry and adult psychiatry services) and voluntary sector agencies (such as carers' organisations). In order to facilitate the referral process, a series of workshops were held for all of these organisations and regular reminders are provided. Individuals that meet the criteria used in Yung *et al* (1998) are deemed to be at incipient risk of psychosis (and hence included in the study).

*Presented in part at the European First Episode Schizophrenia Network Meeting, Whistler BC, Canada, 27 April, 2001.

https://doi.org/10.1192/bjp.181.43.s78 Published online by Cambridge University Press

The entry criteria are as follows:

(a) Specific state risk factors are operationally defined by the presence of either transient psychotic symptoms, termed Brief Limited Intermittent Psychotic Symptoms (BLIPS), or attenuated (subclinical) psychotic symptoms, both of which are defined using an adaptation of Yung *et al*'s (1998) duration and severity criteria based on the Positive and Negative Syndrome Scale (PANSS; Kay *et al*, 1987) cut-off scores. BLIPS are defined by the presence of symptoms that score four or more on hallucinations, four or more on delusions or five or more on conceptual disorganisation, last less than 1 week and resolve without antipsychotic medication. Attenuated symptoms are defined by the presence of symptoms that score three on delusions, two to three on hallucinations, three to four on suspiciousness or three to four on conceptual disorganisation.

(b) Trait plus state risk factors are operationally defined by the presence of an at-risk mental state (defined for the purposes of this study as scoring for caseness on the General Health Questionnaire (GHQ; Goldberg & Hillier, 1979) and/or a recent deterioration of function of 30 points or more on the Global Assessment of Functioning (GAF; American Psychiatric Association, 1994)) plus either a family history indicated by a first-degree relative with a history of any psychotic disorder or a diagnosis of schizotypal personality disorder in the participant.

Potential participants below the age of 16 or above the age of 36 are considered to be outside the maximum risk period for psychosis and are excluded from the study.

Assessment measures

The following measures are used to assess suitability for inclusion in the study.

Positive and Negative Syndrome Scale

The PANSS is a clinician-administered 30-item semi-structured interview consisting of 7 items assessing positive symptomatology (e.g. hallucinations, delusions, conceptual disorganisation), 7 items assessing negative symptomatology (e.g. blunted affect, passive/apathetic social avoidance) and 16 items assessing global psychopathology (e.g. depression, anxiety, lack of insight, guilt). All items are scored between 1 (not present) and 7 (severe). A number of studies have demonstrated the reliability and validity of the PANSS (e.g. Kay *et al* 1987), which was used to assess BLIPS and attenuated symptoms, and is the primary outcome measure used for determining transition to psychosis.

Structured Clinical Interview for DSM–IV (SCID; American Psychiatric Association, 1994)

The SCID is used to assess the presence of schizotypal personality disorder (only the relevant subsection is administered).

General Health Questionnaire

The 28-item version of the GHQ is used to assess general at-risk mental state, using a cut-off score of five or more to define psychiatric caseness.

Global Assessment of Functioning

A simple 100-point measure of psychological, social and occupational ability, the GAF is designed to be concordant with DSM–IV (American Psychiatric Association, 1994).

Study protocol

Potential participants who gave informed consent were assessed using the above measures in relation to the entry criteria. If they met these criteria, they were given the other self-report indicators of risk. Random assignment to the two conditions (monitoring only or cognitive therapy plus monitoring) stratified by gender and genetic risk (whether the participant has a first-degree relative with a psychotic diagnosis) is then achieved using the sealed envelope method by a clerical worker who is independent of the study. Recruitment continues until month 30 (the study is in month 20 at the time of writing). The randomised participants are being monitored at monthly intervals (using PANSS) for a period of 12 months. Attempts are made to keep the assessors blind to the treatment condition.

Transition to psychosis is operationally defined, based on Yung *et al*'s (1998) criteria, using cut-off points on PANSS sub-scales (four or more on hallucinations, four or more on delusions and five or more on conceptual disorganisation), and the frequency of symptoms (at least several times a week) and their duration (more than 1 week). Final follow-up interviews are used to examine duration of untreated illness and psychosis in participants who become psychotic during the study.

Psychological process measures

Several other (psychological) measures are administered in an attempt to refine prediction of transition to psychosis. These measures have been shown to be associated with the presence of established psychotic symptoms and/or psychological processes implicated in the development of psychotic symptoms (all are reliable and valid with normal and psychotic populations).

Oxford–Liverpool Inventory of Feelings and Experiences (OLIFE; Mason et al, 1995)

This is a self-report measure that assesses four personality dimensions detectable in ordinary individuals that closely correspond to the syndromes of schizophrenia: unusual experiences (positive schizotypy), cognitive disorganisation, introverted anhedonia (negative schizotypy) and asocial behaviour (Bentall *et al*, 1989; Claridge *et al*, 1996). The first three of these dimensions correspond very closely to the three syndromes found by Liddle (1987) in his study of schizophrenic symptoms in diagnosed patients (these were positive symptoms, negative symptoms and conceptual disorganisation). It is possible that such personality factors will be associated with risk of transition to psychosis.

Meta-Cognitions Questionnaire (MCQ; Cartwright-Hatton & Wells, 1997)

This is a 65-item measure of beliefs about mental events that has been shown to discriminate between patients experiencing auditory hallucinations, psychiatric controls and normal subjects (Baker & Morrison, 1998) and correlates with predisposition to psychotic symptoms in non-patients (Morrison *et al*, 2000). The questionnaire generates scores for the following five sub-scales: positive beliefs about worry (typical items include 'worrying helps me to get things sorted out in my mind' and 'worrying helps me cope'); negative beliefs about the controllability of thoughts and corresponding danger (typical items include 'worrying is dangerous for me' and 'I cannot ignore my worrying thoughts'); cognitive confidence (typical items include 'I have a poor memory' and 'I have difficulty knowing if I have actually done something, or just imagined it'); negative beliefs about thoughts in general,

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including responsibility, punishment and superstition (typical items include 'not being able to control my thoughts is a sign of weakness' and 'if I did not control a worrying thought, and then it happened, it would be my fault'); and cognitive self-consciousness (typical items include 'I think a lot about my thoughts' and 'I pay close attention to the way my mind works'). Items are scored from one to four, whereby one='do not agree', two='agree slightly', three='agree moderately' and four='agree very much'. Subscales exhibited good internal consistency (α ranged between 0.72 and 0.89) and test–retest reliability (coefficients ranged between 0.76 and 0.94).

Sociotropy–Autonomy Scale (Beck et al, 1983)

These are two 10-item abridged sub-scales of the Sociotropy–Autonomy Scale (originally developed by Beck *et al*, 1983), based on the factor analysis performed by Bieling *et al* (2000). One sub-scale, the SAS–RCS, assesses sociotropy (fear of rejection and criticism) and the other, the SAS–IGA, autonomy (need for independent goal attainment). Participants choose a percentage (0–100%) indicating how closely each statement describes them. This brief measure was included following previous research, which has shown that dysfunctional self-schemas are implicated in psychosis (Zimmerman *et al*, 1986), and are especially evident in currently ill (Bentall & Kaney, 1996; Fear *et al*, 1996) and remitted (further details available from the author upon request) paranoid patients.

The cognitive–behavioural therapy intervention is limited to a maximum of 26 sessions over 6 months and follows the principles developed by Beck and colleagues (e.g. Beck *et al*, 1979). It is problem-oriented, time-limited and educational, encourages collaborative empiricism and uses guided discovery and homework tasks. It is based on the cognitive model most appropriate to the disorder that is prioritised on a problem list agreed between the therapist and the patient. Therefore, if a BLIPS or attenuated psychotic symptom is prioritised, the case conceptualisations (and subsequent treatment strategies) are based on Morrison's (2001) recent integrative cognitive model of hallucinations and delusions. If the problem prioritised is an anxiety disorder (such as panic, social phobia, obsessive–compulsive disorder or generalised anxiety), or depression, then the appropriate models are employed (Beck *et al*, 1979; Clark, 1999; Wells, 2000). As these models have many cognitive, affective and behavioural processes and products in common, this helps generalisation across problems and can be extremely useful for patients with multiple presenting problems. A more detailed analysis of the treatment strategies can be found in Morrison (1998) and a case example with a high-risk patient from this study is described by French *et al* (2001).

RESULTS

Participant flows and enrolment

Over the course of the first 18 months of the study, 61 individuals were referred to the study. Of these, 37 met eligibility criteria and 33 consented to inclusion (two declined and two preferred to remain with existing counselling services). Others were excluded for the following reasons: one was on medication, four already met criteria for an Axis I psychotic disorder, 11 did not meet criteria (no suitable symptoms were elicited) and eight did not attend their assessment appointment. In addition, two of the 33 patients that were initially included in the study proved to be psychotic in month 1, and subsequently revealed that they had been so at initial assessment, but had been too suspicious to disclose at that time. They are, therefore, not included in the sample for analysis. The 31 were referred from a variety of sources: primary care psychological therapy teams (n=8); community mental health teams (n=6); student health services (n=5); general practitioners (n=4); accident and emergency departments (n=3); others, including community drug teams and day hospitals (n=5). Twenty-six of the 31 participants recruited to date were suitable because of attenuated psychotic symptoms. Three participants were suitable because of a family history and two were suitable because of recent BLIPS. The mean age of the high-risk sample is 23.2 (s.d.=4.78) and the male:female ratio is 22:9.

Rate of transition to psychosis

An analysis of the rate of transition to psychosis is shown in Fig. 1. This shows the survival curve (up to 6 months) of those high-risk patients who have been followed up for at least 6 months (n=23) using the criteria for transition to psychosis reported by Yung *et al* (1998). This analysis includes

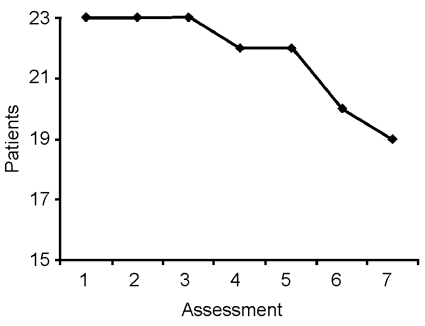

Fig. 1 Survival curve showing patients making transition to psychosis during 12-month follow-up period.

patients allocated to both conditions, and treatment group is not used as a factor in the analysis in order to maintain the blind until the study is completed. At the time of writing, five of the 23 patients (22%) had made the transition to psychosis, but one patient's transition is not indicated in the figure because it occurred at month 12.

All of the five patients who have made transition (excluding those in month 1) were recruited via the attenuated symptom sub-group. Vignettes describing the symptomatology and history of those patients who made the transition to psychosis were rated by an experienced clinician (S.W.L), blind to treatment allocation and referral data, in order to determine the likely DSM–IV diagnoses. Two patients were given a diagnosis of schizophrenia, two were given a diagnosis of schizophreniform disorder and one was given a diagnosis of schizoaffective disorder.

Group comparisons on psychological measures

In this paper we report preliminary data from the patients on some of the psychological measures administered. In order to investigate differences between the high-risk group and normals on the psychological measures, comparisons were made between the scores of the present sample and data available from previous studies conducted with healthy individuals. Normal data for the OLIFE were available from a study conducted by O'Reilly *et al* (2001), who administered the questionnaire to 45 male and 55 female undergraduates with a mean age of 22.32 years (s.d.=3.08). No significant difference was observed between the mean age of this sample and that of the EDIE participants (t=0.06, P=0.98, 2-tailed). Data from the current sample, and also from the sample studied by

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Table 1 Group comparisons for Oxford–Liverpool Inventory of Feelings and Experiences sub-scales

Sub-scale	High-risk sample mean (s.d.)	Non-patients mean (s.d.)	*t*	*P* (1-tailed)
Unusual experiences	38.57 (39.32)	15.81 (6.69)	5.56	<0.001*
Cognitive disorganisation	41.07 (37.64)	14.22 (4.83)	7.00	<0.001*
Introverted anhedonia	36.04 (40.95)	4.96 (4.21)	7.52	<0.001*
Asocial behaviour	36.18 (40.61)	12.68 (3.32)	5.78	<0.001*

*Significant after Bonferroni correction.

Table 2 Group comparisons for Meta-Cognitions Questionnaire (MCQ) and Sociotropy–Autonomy Scale (SAS) sub-scales

Variable	High-risk sample mean (s.d.)	Non-patients mean (s.d.)	*t*	*P* (1-tailed)
MCQ				
Positive beliefs about worry	36.40 (9.12)	35.85 (9.98)	0.2	n.s.
Worry about controllability	48.06 (9.68)	31.90 (8.65)	6.58	<0.001*
Cognitive confidence	24.22 (6.03)	18.51 (5.44)	3.69	<0.001*
Negative beliefs about thoughts	31.12 (7.19)	21.34 (4.93)	6.14	<0.001*
Cognitive self-consciousness	20.67 (4.99)	17.24 (4.23)	2.71	0.004*
SAS				
Fear of rejection and criticism	67.02 (21.47)	53.55 (17.42)	2.79	0.004*
Need for independent goal attainment	54.20 (20.87)	60.05 (18.86)	1.21	n.s.

*Significant after Bonferroni correction.

O'Reilly *et al* (2001) are shown in Table 1. The results of *t*-tests revealed that the high-risk participants scored highly on all four sub-scales and that these differences remained significant even after correcting for type-1 errors by means of the Bonferroni correction (maximum acceptable $P=0.0125$).

Comparison data for the MCQ and the SAS were available from a sample of 8 males and 42 females (undergraduate students and warehouse staff living in the same geographical area as the high-risk sample); no significant difference was observed between the mean age of this group (21.7 years, s.d.=7.71) and that of the high risk-sample ($t=0.94$, $P=0.35$, 2-tailed). In order to investigate differences between the high-risk group and the non-patients on the personality dimensions and meta-cognitive beliefs, a series of *t*-tests was conducted. It can be seen from Table 2 that high-risk patients had significantly higher scores on all dimensions of meta-cognition, except positive beliefs about worry, and scored significantly higher on fear of rejection and criticism, in comparison with non-patients. All of these comparisons survive correction for type-1 errors by the Bonnferoni method (maximum acceptable $P=0.007$).

DISCUSSION

The present findings confirm that Yung and colleagues' approach is a viable procedure for detecting individuals who are likely to develop a psychotic illness in the very near future. Twenty-two per cent of the high-risk sample in the present study who had been followed-up for at least 6 months had made the transition to psychosis (operationally defined using the PANSS). The rate of transition in the present study is lower than that obtained by Yung *et al* (1998), but compares favourably with that study if those making transition in the first month are excluded.

These findings are consistent with the emerging evidence that risk indicators can predict psychotic episodes (Yung *et al*, 1996, 1998; Falloon *et al*, 1996; Olin & Mednick, 1996; Miller *et al*, 2001). Risk factors identified to date have included adolescent and childhood problems, schizotypal personality (Yung *et al*, 1998) and a family history of schizophrenia-spectrum disorders (Asarnow, 1988; Miller *et al*, 2001). Recent studies have shown that the median duration of untreated psychosis is at least 12 weeks (Drake *et al*, 2000; Ho & Andreasen, 2001), although the DUI, which includes the initial prodromal phase, is often much longer (Larsen *et al*, 1996). It has also been suggested that early psychosis may represent a critical period (Birchwood *et al*, 1997), and that psychological interventions targeted at this period might reduce subsequent long-term impairment (Drury *et al*, 1996; Haddock *et al*, 1998). Given the high social and economic costs of psychotic disorders, the early detection of psychosis-prone individuals in primary care, together with protocols to reduce DUP/DUI and effective early interventions, could have substantial benefits for individuals and for society (Falloon *et al*, 1998; Johannessen *et al*, 1999). The results of this study suggest that early detection of people who are likely to develop a psychotic illness in the very near future is feasible, and it is likely that regular monitoring of such individuals could reduce the DUP.

Most studies of potential indicators have used either prospective or retrospective research designs. The former include the genetic high-risk studies, which have identified children of parents with an existing disorder and followed them up over time, limiting the number of cases available for study and ignoring those people who become psychotic in the absence of a family history. Although the retrospective design enables a more representative sample of patients to be studied, research of this sort relies on the accuracy of memory or records. Yung *et al*'s (1996, 1998) method of identifying an indicated high-risk group and studying them prospectively, developed at the PACE clinic in Melbourne, Australia, represents a new approach to this problem. This study validates the adoption of such an approach in a British population. A similar but more long-term approach been described by Klosterkötter *et al* (2001), who reported that 70% of a clinic sample of 110 subjects who had endorsed one or more items on the Bonn Scale for Assessment of Basic Symptoms (Gross *et al*, 1987) had developed DSM–IV schizophrenia at 9.6-year follow-up.

The approach taken to measuring indicators of psychosis in the present study has

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differed from that taken in most previous investigations, which have nearly always employed neurocognitive measures. The high scores of the present sample on the OLIFE are consistent with the hypothesis, developed by personality theorists such as Claridge (1985), that disposition to psychosis is best considered a dimension. Chapman *et al* (1994) found that students scoring highly on similar measures of schizotypal traits had a relatively high risk of becoming psychotic over a 10-year follow-up period compared with normal controls. Together with the present findings, these data suggest that questionnaire measures of schizotypy may be useful screening instruments for identifying people at risk. However, an approach based on questionnaires alone is likely to suffer from a high rate of false positives, which the indicated high-risk strategy partially avoids.

Recent research suggests that neurocognitive measures may be poorly associated with positive symptoms (Green, 1999). Other studies suggest that positive symptoms may be associated with meta-cognitive (Baker & Morrison, 1998; Morrison & Wells, 2000), attributional and self-schema abnormalities (Bentall *et al*, 2001), which have not previously been assessed in high-risk paradigms. The present findings need to be treated with some caution, given the non-matched comparison samples available to us. However, the high scores obtained on the meta-cognition questionnaire sub-scales are consistent with Morrison's proposal that these kinds of beliefs play a significant role in the development of hallucinations and delusions, and the high scores on the fear of rejection and criticism component of the SAS (SAS–RCS) are consistent with current conceptualisations of the development of paranoid ideation (Bentall *et al*, 2001). The present findings therefore suggest that these and related variables are worthy of further investigation as potential high-risk indicators.

This improved ability to accurately define high risk achieved by Yung *et al* (1996, 1998) and confirmed in this study has led some researchers to attempt illness prevention with atypical antipsychotic medication (McGorry *et al*, 1999; Miller & McGlashen, 2000). In these studies, atypical antipsychotic medications (risperidone and olanzapine, respectively) are being evaluated in randomised controlled trials in an attempt to reduce transition to psychosis. However, all treatment studies in this population have potential problems. First, treatments shown to be effective in psychotic disorders may have a different effectiveness profile in prodromal/high-risk states. Second, the specificity of prodromal/high-risk states in the prediction of later psychosis will be less than 100%, meaning that some cases, the false positives, will have been exposed to the risks of treatment unnecessarily. These limitations apply, with different emphases, both to drug and psychosocial interventions. In the existing pharmacological studies, the majority of people (the false positives) in receipt of a medication may be expected to tolerate relatively common side-effects such as pronounced weight gain and sexual dysfunction without any benefit to themselves; given the typical concerns of people in the age range at greatest risk (approximately 16–30 years), this seems highly undesirable. Less common, but more severe, side-effects (including potentially fatal problems such as neuroleptic malignant syndrome) make the use of antipsychotic medication with individuals who may never develop psychosis a highly contentious, possibly unethical, practice.

Given that the risks associated with using pharmacological interventions with false positive cases are considerable, the logical alternative would seem to be the use of psychosocial interventions. Cognitive therapy, perhaps the best researched and most widely recognised treatment of this sort, would pose little risk to the false positive group; indeed the problem-oriented nature of this intervention would mean that it is likely to be of benefit to these individuals (all people in Yung *et al*'s group and in the present study have some level of past or current psychotic symptoms or a deterioration in functioning). Cognitive therapy is collaborative, educational and time-limited, and involves the patient and therapist working together on an agreed problem list which may prioritise problems unrelated to psychosis, such as family relationships, occupational concerns, social anxiety and depression.

Several arguments can be adduced to suggest that cognitive therapy may be particularly beneficial to high-risk groups. First, the psychological processes typically targeted during cognitive therapy include meta-cognitions and self-schemas, factors that we have argued may play a role in conferring risk of illness. Second, it has been shown in patients with established psychosis that cognitive–behavioural monitoring of prodromal signs can facilitate early intervention and relapse prevention or amelioration (Birchwood *et al*, 1989). Similarly there are a number of randomised controlled trials that have indicated the efficacy of cognitive–behavioural interventions for acute and chronic psychotic symptoms in patients with schizophrenia-spectrum diagnoses (Drury *et al*, 1996; Kuipers *et al*, 1997; Tarrier *et al*, 1998; Sensky *et al*, 2000). A final compelling rationale for the provision of cognitive–behavioural therapy to people at high risk of developing psychosis is the predominance of mood-related symptoms in psychotic prodromal states (Birchwood, 1996). Cognitive–behavioural therapy is an effective treatment for both anxiety disorders (Clark, 1999) and depression (Hollon *et al*, 1996). When considered together, these arguments suggest that cognitive–behavioural therapy may be uniquely suitable for preventing transition to psychosis in a way that is acceptable to patients and their carers.

The EDIE project is the first study to attempt this type of intervention in a randomised clinical trial. Although it remains too early to determine whether this intervention will be effective in reducing the rate of transition as we hypothesise, it is probable that regular monitoring of this population will result in a reduction of the DUP or DUI, which on its own should be a benefit. However, a final conclusion about the effectiveness of these interventions must await the completion of the study.

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CLINICAL IMPLICATIONS

- It is possible to identify people at high risk of developing psychosis in a British population.
- Cognitive therapy appears well suited as an intervention for such patients.
- Clinicians should consider assessment of metacognitive beliefs and self-schemas.

LIMITATIONS

- Data regarding the efficacy of interventions with high-risk patients are currently unavailable.
- It is too early to determine whether psychological factors predict transition to psychosis.
- The study is conducted in an urban population.

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