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Patient predictors of symptom and functional outcome following cognitive behaviour therapy or befriending in first-episode psychosis ☆

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ABSTRACT

Background: Cognitive behaviour therapy (CBT) is an effective treatment for many, but not all, individuals with psychosis. An important goal is identifying individuals more likely to benefit from CBT to ensure appropriate delivery. The current study aimed to examine patient-related predictors of symptom and functional outcome following CBT and Befriending in first-episode psychosis (FEP).
Method: Our original randomized controlled trial compared 14 weeks of CBT ($n=31$) and Befriending ($n=31$) in FEP (Jackson et al. 2008). A series of regressions were conducted separately for each group to examine demographic, cognitive, symptoms/illness and functioning variables in predicting positive symptoms (BPRS Psychotic), negative symptoms (SANS Total) and functioning (SOFAS) at 1-year follow-up.
Results: In the CBT group, higher baseline functioning (SOFAS) predicted lower levels of positive symptoms ($R^2=0.19$; $p=0.023$), higher educational achievement and lower levels of avolition symptoms (SANS Avolition) predicted lower levels of total negative symptoms ($R^2=0.38$; $p=0.003$), and working/studying at baseline predicted higher functional outcome ($R^2=0.35$; $p=0.004$) at 1 year. In the Befriending group, premorbid adjustment (PAS Average) was the only variable that predicted 1-year positive symptom ($R^2=0.26$; $p=0.010$), negative symptom ($R^2=0.35$; $p=0.016$) and functional ($R^2=0.48$; $p=0.002$) outcome.
Conclusions: FEP individuals with higher baseline functioning may benefit more from CBT than those with poorer functioning. Individuals with functional difficulties may benefit from alternative treatments initially, such as supported education or employment.

1. Introduction

There is a general consensus that pharmacological treatments alone are insufficient for treating the heterogeneous symptomatic presentations and poor functional outcomes commonly associated with psychotic disorder (Pilling et al., 2002; Pfammatter et al., 2006). Thus, complementary psychological treatments are formally recognised as important for reducing distress and enhancing the chances of complete recovery from psychotic illness. In particular, cognitive behaviour therapy (CBT) has been internationally recommended as an important adjunctive treatment (McGorry et al., 2005; National Institute for Health and Clinical Excellence, 2009; Dixon et al., 2010).

Most meta-analyses of controlled trials of CBT for psychosis (CBTp) suggest significant moderate improvements in positive and negative symptoms, as well as functional outcomes (Gould et al., 2001; Pilling et al., 2002; Zimmermann et al., 2005; Pfammatter et al., 2006; Wykes et al., 2008), but not all reviews have been positive (Jones et al., 2004; Lynch et al., 2010). Aside from probable methodological reasons for the different conclusions of reviews of CBTp (such as methodological rigor, participant inclusion criteria, intensity and duration of treatment, focus of treatment, comparison group, outcome measures), the diverse findings also indicate that not all individuals with psychosis respond to CBT (Garety et al., 1997; Tarrier et al., 1998).

To ensure appropriate and targeted delivery of various psychosocial interventions it is important to improve identification of those individuals who are more likely to benefit from specific treatments, such as CBTp (Kraemer et al., 2002; Wykes et al., 2009). Several controlled trials (Tarrier et al., 1993; Garety et al., 1997; Leclerc et al., 2000; Haddock et al., 2006; Granholm et al., 2008; Naeem et al., 2008; Brabban et al., 2009; Fowler et al., 2009) and one uncontrolled study (Dunn et al., 2006) have investigated various baseline patient factors that may predict outcomes specifically following CBTp, but the results to date have been mixed. In a randomized controlled trial (RCT) of CBTp and treatment as usual (TAU) vs. TAU alone, Garety and colleagues (1997) found that greater insight and a higher number of recent admissions

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predicted symptom improvement following CBT, whereas greater hopelessness and poorer social functioning (measured by the Social Functioning Scale) predicted symptom improvement in the TAU control group. In the SoCRATES (Study of Cognitive Realignment Therapy in Early Schizophrenia) trial, Haddock et al. (2006) found that older patients (over 21 years) responded better to CBT whereas younger patients responded better to supportive counselling in regards to symptom reduction, but age did not predict functional outcome. Female gender (Brabban et al., 2009) and a diagnosis of non-affective psychosis (Fowler et al., 2009) have also been associated with a better response to CBTp vs. control treatment. However, other studies were unable to find any unique predictors of CBTp response relative to control treatments (Tarrier et al., 1993; Leclerc et al., 2000; Granholm et al., 2008).

Aside from the inconsistent findings, there are two further limitations of the existing literature. Only one study has simultaneously examined a broad range of potentially predictive patient characteristics, including demographic, cognitive, symptomatic and functioning variables (Garety et al., 1997) and only three studies have examined the prediction of both symptomatic and functional outcome (Leclerc et al., 2000; Haddock et al., 2006; Fowler et al., 2009). Furthermore, no study to date has examined predictors of outcome following CBT in first-episode psychosis (FEP) specifically. This is important because there may be differential predictors of outcome following CBTp according to stage of illness.

Our previously reported single-blind RCT compared the efficacy of CBT with a control therapy (Befriending) in individuals in the acute phase of FEP (Jackson et al., 2008). The main finding was that CBT led to significantly better functioning, but not symptoms, at mid-treatment compared to Befriending. There were no significant differences in symptoms or functioning post-intervention and at 1-year follow-up. Anecdotally, the therapists in the trial reported that some patients appeared better suited or responded better to CBT than others. The aim of this secondary study was to address some of the limitations of the existing literature by examining the contribution of a broad range of patient characteristics in predicting symptom and functional outcome following CBT or Befriending in FEP. No hypotheses were made and analyses are considered exploratory as this area remains relatively under-researched with inconsistent findings (see Kraemer et al., 2002).

2. Method

2.1. Participants and design

Complete details of the study procedure and included participants are described in Jackson et al. (2008). Briefly, 62 participants were recruited from the Early Psychosis Prevention and Intervention Centre (EPPIC) in Melbourne, Australia and randomized within 6 weeks of service registration to receive either individual CBT ($n=31$) or Befriending ($n=31$) — a therapy designed to control for non-specific factors associated with therapeutic exposure. Details of the therapies are provided in their respective manuals (Bendall et al., 2003, 2005). A maximum of twenty 45-minute therapy sessions were delivered over 12–14 weeks. Both groups also received TAU (i.e., medication, case management, group program) during the treatment phase of the trial and follow-up period. Assessments were conducted by raters blind to treatment condition at baseline (pre-treatment), 6 weeks (mid-treatment), 12 weeks (post-treatment) and 1-year follow-up.

2.2. Measures

A description of the range of measures used in the original study is provided previously (Jackson et al., 2008). Only the measures relevant to the current study are described here. Where possible, variables that were examined in previous studies of the predictors of CBTp outcome were included (e.g., Tarrier et al., 1993; Garety et al., 1997; Naeem et al., 2008; Brabban et al., 2009). The predictor measures covered four major domains: demographic variables, cognition (IQ), illness and symptom variables, and social and vocational functioning.

2.3. Predictor variables

2.3.1. Demographic variables

Four baseline (pre-intervention) demographic predictor variables were included: 1) sex, 2) age, 3) education level (dichotomous: uncompleted vs. completed secondary school), and 4) premorbid adjustment. Premorbid adjustment was assessed via interview with a person who knew the participant well (e.g., parent) using the Premorbid Adjustment Scale (PAS; Cannon-Spoor et al., 1982): the Average subscale score was used in the current analyses as the Adulthood subscale did not apply to all participants due to their younger age.

2.3.2. Cognition

Estimated Full-Scale IQ (FSIQ) was the only cognitive predictor variable and was measured using the Wechsler Abbreviated Scale of Intelligence (WASI; Wechsler, 1999). Since the study recruited participants who were acutely psychotic, FSIQ was measured at the 12-week assessment or when participants were deemed clinically stable.

2.3.3. Illness and symptom variables

Three baseline (pre-intervention) illness-related predictor variables were included: 1) duration of untreated psychosis (DUP) — defined dichotomously as DUP less than or equal to 60 days vs. greater than 60 days (DUP60), 2) age at illness onset, and 3) medication compliance, which was measured using the Medication Adherence Rating Scale (MARS; Thompson et al., 2000).

Given that psychotic symptoms are one of the primary targets of CBT, a broad range of symptom-based predictor variables were included. Nine baseline variables were examined as predictors of outcome, including: 1) the Total score and 2) Psychotic subscale of the Brief Psychiatric Rating Scale (BPRS; Ventura et al., 1993; Harrigan et al., 2003); 3) the Total score, 4) Avolition and 5) Anhedonia subscales of the Scale for the Assessment of Negative Symptoms (SANS; Andreasen, 1984; 6) the degree of Distress, 7) Preoccupation, and 8) Conviction of the participant's chief delusion or hallucination measured using a Likert scale based on the Peters et al. Delusions Inventory (PDI; Peters et al., 1999); and 9) the total score of the Center for Epidemiologic Studies Depression Scale-Revised (CESD-R; Eaton, 2001) indexed the level of depressive symptomatology.

2.3.4. Functioning

Two baseline functioning predictor variables were included: 1) work status, defined as any paid work or study vs. no paid work or study, and 2) score on the Social and Occupational Functioning Assessment Scale (SOFAS; American Psychiatric Association, 2000).

2.4. Outcome variables

For the current study the three outcome variables were: 1) the level of positive symptoms (BPRS Psychotic subscale), 2) the level of negative symptoms (SANS Total score), and 3) the level of social and occupational functioning (SOFAS score) at 1-year follow-up.

2.5. Statistical analysis

A range of patient-related predictor variables were selected *a priori* for inclusion in the regression analyses as described in the Measures section. A series of univariate regressions with the individual predictor variables was first conducted to assess the unadjusted associations between each predictor candidate and symptom and functional outcomes at 1-year follow-up (BPRS Psychotic scale, SANS Total and SOFAS scores). Separate analyses were conducted for the CBT and Befriending groups. Those predictors associated with the outcome variables at an *a priori*