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The prognostic value of formal thought disorder following first episode psychosis

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ABSTRACT

Background: Formal thought disorder (FTD) is associated with poor outcome in established psychotic illnesses and it can be assessed as a categorical or dimensional variable. However, its influence on functional outcome and hospitalisation patterns in early psychosis has not been investigated. We evaluated the relationship between FTD and these outcomes in a first episode psychosis (FEP) sample.
Materials and methods: A mixed diagnostic FEP cohort was recruited through an Early Intervention in Psychosis Service in Ireland. Participants were assessed at initial presentation and one year later with the MIRECC GAF to evaluate social and occupational functioning domains. Disorganisation (disFTD), verbosity (verFTD) and poverty (povFTD) dimensions of FTD were examined at both time points, as well as a unitary FTD construct. Analyses were controlled for demographic, clinical and treatment variables.
Results: DisFTD was the only FTD dimension associated with functional outcome, specifically social functioning, on multivariate analysis (beta = 0.13, $P < 0.05$). The unitary FTD construct was not associated with functional outcome. DisFTD at FEP presentation predicted a greater number of hospitalisations (adjusted beta = 0.24, $P < 0.001$) and prolonged inpatient admission (adjusted OR = 1.08, 95% CI 1.02–1.15, $P < 0.05$) following FEP.
Conclusions: Longitudinal and dimensional evaluation of FTD has a clinical utility that is distinct from a cross-sectional or unitary assessment. Dimensions of FTD may map onto different domains of functioning. These findings are supportive of some of the changes in DSM-V with an emphasis on longitudinal and dimensional appraisal of psychopathology. Communication disorders may be considered a potential target for intervention in psychotic disorders.

1. Introduction

Disturbance in language functioning is a core feature of psychotic disorders. Formal thought disorder (FTD) is the most extensively investigated language disturbance and it may be assessed as a unitary or multi-dimensional construct. Up to six dimensions of FTD have been identified, most commonly positive and negative subtypes (Roche et al., 2015a). FTD dimensions affect 55% of those presenting with first episode psychosis (FEP) and may be associated with acute clinical presentation, poor quality of life and worse therapeutic relationships (Roche et al., 2015b; Tan et al., 2014; Cavelti et al., 2016). An area that has received very little investigation is the prognostic value of FTD dimensions; this may relate to its influence on functional outcome and clinical course of illness, amongst other outcomes (Roche et al., 2015a).

A reasonably consistent cross-sectional association between FTD and social functioning has been demonstrated (Bowie et al., 2011; Smith et al., 1999; Kother et al., 2012; Roche et al., 2016) and different dimensions of FTD may have distinct influences on outcome (Bowie and Harvey, 2008). FTD may also identify an increased risk of psychotic relapse (Wilcox et al., 2000) and higher symptom burden (Jampala et al., 1989; Jorgensen and Aagaard, 1988) in those with established psychotic disorders. This "psychosis-proneness" characteristic of FTD may be evident in clinical high risk samples, where attenuated forms of FTD dimensions predict conversion to frank psychotic disorders (Addington et al., 2015; Ruhrmann et al., 2010; Bearden et al., 2011). Therefore, FTD may represent an endophenotypic marker for the development of psychotic illness and a severity index in psychotic disorders.

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There has been a paucity of research into the prognostic effect of FTD in early psychosis and, specifically, whether FTD dimensions map onto distinct clinical outcome domains.

The current study examines the prognostic value of FTD in the first year following FEP. This cohort of patients is of particular interest and importance in relation to FTD for several reasons. FEP cohorts are relatively free of the long-term effects of antipsychotic medication which have potential to influence language functioning (Goldberg et al., 2000; Spohn et al., 1986). Language disturbances may be more marked in those with stable established schizophrenia than in those with acute exacerbations of the illness (Thomas et al., 1990) and there may be a progressive simplification of syntax in those with psychotic illnesses (King et al., 1990). It is possible, therefore, that the critical window in early psychosis has relevance to language functioning. All of this has relevance to the repeated suggestions that FTD could be considered a potential target for intervention in psychotic disorders (Bowie and Harvey, 2008; Roche et al., 2016).

We incorporated into our study design some of the key recommendations made by the DSM-V taskforce in relation to the evaluation of psychopathology (American Psychiatric Association, 2013; Heckers et al., 2013); specifically we investigated the prognostic value of a dimensional and longitudinal evaluation of FTD. We evaluated the prognostic value of FTD dimensions as they related both to functional outcome and clinical course of illness in the first year following FEP. We had three main hypotheses: 1) that, given their established clinical utility, dimensions of FTD would have greater prognostic value than a unitary evaluation of FTD; 2) that, given the association between positive FTD and social functioning (Bowie et al., 2011; Smith et al., 1999; Kother et al., 2012; Roche et al., 2016), a persistent course of the disorganisation dimension (disFTD) would be predictive of poorer social functioning; and 3) that, given the "psychosis-proneness" effect associated with negative FTD (Wilcox et al., 2000; Ruhrmann et al., 2010) a greater severity of the poverty dimension (povFTD) evident at FEP presentation would be predictive of re-hospitalisation patterns in the year following FEP.

Table 1
Patient characteristics at 1 year.

	Functional Study (N = 397) n (%)	Hospitalisation Study (N = 283) n (%)
Demographic characteristics		
Age, median (interquartile range)	33 (25–44)	34 (26–45)
Male gender	217 (54)	152 (54)
Female gender	180 (46)	131 (46)
Married, ever	89 (22)	62 (22)
Secondary education	280 (69)	201 (71)
Living alone	76 (19)	59 (21)
Employed	167 (41)	110 (39)
Diagnostic classification		
Schizophrenia-spectrum disorder	220 (54)	160 (56)
Bipolar affective disorder	43 (11)	26 (9)
Major depressive disorder	41 (10)	25 (9)
Delusional disorder	36 (9)	27 (10)
Substance-induced psychotic disorder	22 (5)	6 (2)
Other	35 (8)	39 (14)
Treatment characteristics		
Inpatient at 1 year assessment	26 (6)	18 (6)
Inpatient hospital treatment	231 (58)	165 (58)
- At FEP presentation	117 (29)	78 (28)
- Following FEP presentation	1 (0–5)	1 (0–3)
- Number of admissions, median (range)	22 (0–365)	20 (0–354)
- Total hospital days, median (range)		
Attended group cognitive behavioural therapy	200 (50)	133 (47)
Relative attended career education group	155 (39)	113 (40)

2. Materials and methods

2.1. Study setting and design

The study was performed in the DETECT Early Intervention in Psychosis Service in Ireland. The DETECT service covers a geographically defined catchment area serving three community mental health services as well as a private psychiatric hospital. A cohort of individuals diagnosed with FEP was evaluated at first presentation of psychosis and one year later. The study is part of a larger study investigating outcomes in early psychosis (Lyne et al., 2013; O'Donoghue et al., 2014; Renwick et al., 2012).

2.2. Participants

We included individuals who were aged 16–65 years old and diagnosed with a first episode of affective or non-affective psychotic disorder. Exclusion criteria were the diagnosis of a psychotic disorder due to a general medical condition, a diagnosis of learning disability or treatment with antipsychotic medication for >30 days prior to referral (Lyne et al., 2013; Renwick et al., 2012).

Two samples overlapping in recruitment time period were included in this study. The sample recruited for the evaluation of hospitalisation pattern was recruited between January 2005 and July 2014. The sample recruited for the evaluation of functional outcome was recruited between January 2009, when the MIRECC version of the GAF was introduced to the clinical assessment protocol, and July 2014. Demographic and clinical characteristics of the participants in both samples are presented in Table 1.

2.3. Clinical assessments: measures of FTD

FTD dimensions were evaluated with the Scale for the Assessment of Positive Symptoms (SAPS) and the Scale for the Assessment of Negative Symptoms (SANS) (Andreasen, 1984a, 1984b). Three dimensions of FTD were identified in a previous study: disFTD (derailment, tangentiality, circumstantiality, incoherence, illogicality and distractible speech items from the SAPS); verFTD (pressure of speech and clanging items from the SAPS) and; povFTD (poverty of speech and poverty of content of speech items from the SANS) (Roche et al., 2015b; Cuesta and Peralta, 2011). A unitary construct of FTD (FTD-SCID) was evaluated with the Structured Clinical Interview for DSM-IV Disorders (SCID-IV) as a binary variable (First et al., 2002).

2.4. Clinical assessments: outcome variables

The primary outcome variables evaluated were: 1) functional outcome, both social and occupational and 2) hospitalisation pattern i.e. number of re-admissions and total number of inpatient days in the first year following FEP. We used the MIRECC GAF subscales to evaluate occupational and social functioning at FEP presentation and one year assessment (Niv et al., 2007). The occupational and social subscales of the MIRECC GAF are each scored from 1 (worst functioning) to 100 (best functioning). The Client Socio-demographic and Service Receipt Inventory (CSSRI) was used to collect information in relation to service usage in the first year following FEP, including hospitalisation patterns (Chisholm et al., 2000).

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