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Social dysfunction in first-episode psychosis and relations to neurocognition, duration of untreated psychosis and clinical symptoms

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ABSTRACT

Signs of social dysfunction are present early in the course of psychotic disorders. There is a lack of knowledge about how premorbid function, illness history, psychotic symptoms and neurocognitive characteristics are related to social function in patients with first episode psychosis (FEP). The relationship between these factors could provide important information about the psychopathology underlying social dysfunction and have implications for future prevention and treatment efforts. Our objective is to identify early predictors of social functioning in patients with FEP. We examined 166 patients and 166 age- and gender-matched healthy controls (HC). We used a validated and comprehensive measure of social functioning (the Social Functioning Scale), a comprehensive neurocognitive test battery, in addition to measures of psychotic symptoms, duration of untreated psychosis (DUP) and premorbid adjustment (the Premorbid Adjustment Scale). Lower childhood level of social adjustment and lower psychomotor speed had the strongest influence across measures of social functioning while symptoms and DUP had a weaker influence. The main result of the current study is that premorbid social adjustment and psychomotor speed had the strongest association with measures of social functioning in patients with FEP.

1. Introduction

Reduced social function is one of the core symptoms in psychotic disorders, and a part of the diagnostic criteria for schizophrenia. Several factors influence the level of social dysfunction, the most prominent being neurocognitive impairment (Green et al., 2004b) and negative symptoms (Ventura et al., 2009). Signs of social dysfunction are present early in the course of the disorder, and in the symptomatic prodromal phase (Niendam et al., 2009), and are well established at start of first treatment (Malla and Payne, 2005). There are also indications of social dysfunction already in the premorbid phase (Welham et al., 2009). Since the development of social dysfunction post-treatment can be influenced by a range of factors including the availability of treatments and subsequent treatment response, patients in the early treatment phases are particularly well suited to investigate the processes related to development of social dysfunction.

Neurocognitive impairments are present in most, but not all, patients at the time of their first psychotic episode (Holthausen et al., 2002). A meta-analysis of 47 studies on neurocognition in first episode schizophrenia spectrum patients indicated that they experience the same degree of neurocognitive impairments as found in patients with well-established illness, with particular deficits in immediate verbal memory and psychomotor speed (Mesholam-Gately et al., 2009). Negative symptoms are also to a large extent present in patients with first episode psychosis (FEP), and are here associated with social functioning and social skills (Makinen et al., 2008). A recent review reported that the relationship between neurocognition and social functioning was partly mediated by negative symptoms (Ventura et al., 2009) but did not separate the results for first episode and long-term patients. In addition to the complex relationships between neurocognition, negative symptoms and early illness development, study results are also difficult to compare due to the use of different assessment batteries.

Factors preceding onset of treatment may also be related to social dysfunction, including premorbid adjustment and duration of untreated psychosis (DUP). A systematic review suggested that premorbid adjustment and DUP were independent constructs with separate effects on aspects of FEP, including social

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functioning (MacBeth and Gumley, 2008). As indicated by a meta-analysis, FEP patients with a longer DUP appear to have poorer global functioning than those with a short DUP (Perkins et al., 2005). Some studies indicate that DUP is related to different aspects of social functioning to varying extents, indicating a complex pattern of associations (Drake et al., 2000; Melle et al., 2005),suggesting that use of more multifaceted measures of social functioning would be helpful. In a 1-year follow-up of a group of FEP patients using a seven-subscale self-report questionnaire, the Social Functioning Scale (SFS), Barnes et al. (2008) found that a long DUP predicted poor social functioning after 1 year on four SFS subscales, withdrawal, independence competence, pro-social activities and employment/occupation, independent of current symptoms and of age at psychosis onset (Barnes et al., 2008).

Finally, worse premorbid adjustment has been found to predict a diagnosis of schizophrenia in patients with FEP (Ramirez et al., 2010). A recent review also indicated that poor premorbid adjustment was associated with social dysfunction in FEP (MacBeth and Gumley, 2008). Based on the composite nature of most premorbid adjustment measures, it has been suggested that measures should be divided into developmental periods and into social vs. academic functioning (Haahr et al., 2008). Levine and Rabinowitz (2009) found years of education both mediating and moderating an earlier onset and a poorer prognosis of schizophrenia, especially in men, and they recommend more research into how early life cognitive and social factors interact with age of onset. In a study of the developmental patterns of premorbid adjustment in a group of FEP patients (Monte et al., 2008), there were associations between premorbid social adjustment and the social engagement/withdrawal subscale of the SFS. Similarly, in a previous article from our study group based on a subsample of the current sample, we have shown that premorbid childhood social adjustment had a significant association with global functioning at start of treatment (Faerden et al., 2009).

There is thus still a paucity of knowledge about when in the premorbid phase social dysfunction becomes apparent. We also lack full information about its complex relations to illness history-, clinical- and neurocognitive-characteristics in patients with FEP when all these possibly interdependent factors are taken into account. To our knowledge, no previous study has investigated the relationship of social functioning to this range of history, clinical, and neurocognitive characteristics in patients.

Our aim is to identify clinical predictors of social functioning in large groups of age- and gender-matched patients with FEP at first treatment contact compared to healthy controls, using a validated and comprehensive measure of social functioning (the SFS), a comprehensive neurocognitive test battery, measures of DUP, of psychotic symptoms and of premorbid adjustment (divided into domains of functioning and time periods).

2. Methods

2.1. Sample

The clinical sample was recruited as consecutive referrals to the ongoing Thematic Organized Psychosis Research (TOP study) from in- and out-patient psychiatric units of the major hospitals in Oslo, Norway, from 2003 to 2009. The patients came to their first adequate treatment for a psychotic disorder, meeting the DSM IV criteria for a broad range of non-affective psychotic disorders, including schizophrenia, schizoaffective and schizophreniform disorder (schizophrenia spectrum psychosis=65.7%), brief psychosis, delusional disorder or psychosis NOS (other psychosis=34.3%). All had full assessment protocols for clinical, neurocognitive and social functioning evaluations (n=166). Patients were considered as previously adequately treated (and not included in the present substudy as first episodes) if they at any time before the last 12 months had received antipsychotic medication in adequate doses for more than 12 weeks regardless of treatment response. The current sample represents the baseline of a planned prospective longitudinal study.

A healthy control group (HC) was randomly selected from statistical records from the same catchment area as the clinical sample and invited by letter to participate. The age range for both patient and HC group was from 18 to 65 years. The HC participants were excluded if they or any close relative had a lifetime history of a severe psychiatric disorder, such as schizophrenia, bipolar disorder or major depressive disorder. None of the groups had a history of medical problems thought to interfere with brain functioning (hyperthyroidism, uncontrolled hypertension or diabetes) or recent cannabis use. Individuals from the HC group (n=166) were then matched with individuals in the patient group for age and gender. It was possible to get a close match for age, but not possible to get a complete match for gender (see Table 1).

All participants gave written informed consent. The study was approved by the Regional Committee for Medical Research Ethics and the Norwegian Data Inspectorate. Exclusion criteria for all participants were: history of serious head injury with neurological complications, neurological disorder, mental retardation, and being unable to comprehend Norwegian language at a level necessary to complete the neurocognitive testing. To assure valid assessment of neurocognitive test performance, all participants had to score 15 or above on the forced recognition trial of the California Verbal Learning Test (CVLT II) (Delis et al., 2004). IQ was estimated with the Wechsler Abbreviated Scale of Intelligence (WASI) (Wechsler, 2007). See Table 1.

Table 1
Demographic and clinical characteristics of patients and healthy control participants.

Variable	Patients N=166	Healthy controls N=166	Test statistics	p value	Effect sizes
Male (N/%)	105/63%	95/57%	χ^2 0.02	0.313	OR 1.28
Age at testing in years (mean/S.D.)	27.8 (8.5)	28.6 (7.8)	F 2.14	0.357	
IQ age-adjusted WASI scores (mean/S.D.)	98.9 (17.0)	113.9 (10.4)	F 92.49	0.001	Eta sq. 22
Education in years (mean/S.D.)	12 (2.2)	14 (2.2)	F 69.88	0.001	Eta sq. 17
PAS initial social function (mean/S.D.)	1.2 (1.3)	–	–		
PAS initial academic function (mean/S.D.)	1.8 (1.4)	–	–		
PAS social change (mean/S.D.)	0.9 (1.5)	–	–		
PAS academic change (mean/S.D.)	0.8 (1.4)	–	–		
DUP in weeks (mean/S.D.)	137 (209)	–			
PANSS positive symptoms (mean/S.D.)	15.7 (4.7)	–			
PANSS negative symptoms (mean/S.D.)	15.0 6.2)	–			
PANSS general symptoms (mean/S.D.)	32.5 (7.3)				
GAF function (mean/S.D.)	44.3 (12.3)				
GAF symptom (mean/S.D.)	41.2 (10.9)				
Using antipsychotics (N/%)	131/79%	–			
Using sedatives (N/%)	16/10%	–			
Using antidepressants (N/%)	49/30%	–			

DUP=duration of untreated psychosis; PANSS=Positive and Negative Syndrome Scale; GAF=Global Assessment of Symptom and Functioning Scale; PAS=Premorbid Adjustment Scale (higher scores indicate poorer functioning).