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Predictors of improved functioning in patients with psychosis: The role of amotivation and defeatist performance beliefs

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ABSTRACT

Defeatist performance beliefs (DPBs) are associated with severe impairments in functioning of patients with negative symptoms of schizophrenia. This association has been found to be mediated by amotivation, a core aspect of negative symptoms. Although causality is assumed, longitudinal evidence for this is lacking. The current study aimed to extend previous findings by investigating both cross-sectional and longitudinal associations between DPBs, motivational impairments and functioning in a sample of patients with psychotic disorders ($N=58$). We hypothesized, that DPBs would be related to functioning in cross-sectional and longitudinal analyses and that this link would be mediated by motivational impairments. Data was assessed at baseline and post-treatment in a trial on the effects of cognitive behavior therapy for psychosis. At baseline, amotivation mediated the association between DPBs and functioning. From baseline to post-treatment, reduction of amotivation was associated with improvement of functioning significantly, whereas reduction of DPBs was unrelated to improvements in functioning or amotivation. The findings suggest that improvement in amotivation accounts for favorable treatment outcomes in regard to functioning but question the causal role of DPBs in negative symptoms and functioning.

1. Introduction

Negative symptoms of schizophrenia are associated with severe impairment in global and social functioning (Blanchard et al., 2015; Fervaha et al., 2014) and poor quality of life (Foussias et al., 2014). They appear to be fairly resistant to both antipsychotic (Buchanan et al., 2007; Fusar-Poli et al., 2015) and psychological treatments (Fusar-Poli et al., 2015; Huhn et al., 2014; Velthorst et al., 2015) and the mechanisms leading to functional impairments are not sufficiently understood (White et al., 2013).

The cognitive model (Beck et al., 2009; Rector et al., 2005) suggests that dysfunctional attitudes such as defeatist performance beliefs (DPBs; i.e. generalized negative conclusions regarding ones' own performance) directly contribute to the development of negative symptoms and diminished functioning. It is postulated that, especially in social situations, DPBs cause a lack of goal-directed behavior (i.e. diminished motivation), a core aspect of negative symptoms (Foussias and Remington, 2010) and this in turn reduces the likelihood of pleasurable social experiences that could contradict ones' DPBs. Previous cross-sectional research generally supports the cognitive model by showing an association of DPBs and the diminished experience of motivation and pleasure factor of negative symptoms (MAP; Beck et al., 2013; Couture et al., 2011; Green et al., 2012; Horan et al., 2010; Rector, 2004). Moreover, DPBs have been shown to be associated with diminished functioning and this association is mediated by MAP (Grant and Beck, 2009; Green et al., 2012; Quinlan et al., 2014). Although the authors expect causality in this regard, the vast majority of previous research relies on cross-sectional designs that inevitably constrain causal inferences.

To date, only few studies address the association of DPBs with motivation and functional outcomes longitudinally (Granholm et al., 2013; Grant et al., 2012). One study found that cognitive therapy targeting dysfunctional attitudes (e.g. DPBs) was effective in improvement of motivation and functioning in a sample of patients with persistent negative symptoms (Grant et al., 2012). The authors conclude that cognitive therapy might trigger recovery by reducing dysfunctional attitudes. However, measures of dysfunctional attitudes were not reported in this study, rendering this conclusion speculative. Findings from another study found a reduction of DPBs to be associated with change in functioning 18 months after being treated with cognitive therapy with additional social skill training (Granholm et al., 2013). This might indicate evidence for a mediation, as postulated by the cognitive model. However severity of DPBs did not change significantly over the course of therapy, which violates one criterion for a mediation. In

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addition, the association between DPBs and negative symptoms was not evident for the patients in the control condition.

Taken together, the basic assumptions of the cognitive model are well supported by cross-sectional evidence, whereas there is a paucity of longitudinal evidence leaving it questionable whether DPBs contribute to motivational and functional impairments in a causal manner.

1.1. The present study

The aims of the present study were to confirm previous cross-sectional findings regarding the associations between defeatist performance beliefs, motivational impairments and functioning and to extend previous longitudinal findings regarding the association of change in DPBs, change in motivation and change in functioning. We hypothesized that (1) DPBs are cross-sectionally associated with impaired motivation and lower functioning and that the association between DPBs and functioning is mediated by amotivation and (2) that improvement in DPBs over the course of treatment is associated with improvement in functioning and that this longitudinal association is mediated by improvement in motivation.

2. Methods

2.1. Participants and study setting

The sample consisted of 58 (23 female, 35 male) outpatients with diagnosis of either schizoaffective disorder ($n=18$), schizophrenia ($n=35$), or other psychotic disorders ($n=5$). Sample characteristics and descriptive data are shown in Table 1. Patients were treated within a trial of Cognitive Behavior Therapy for Psychosis (CBTp) investigating therapy processes and mechanisms of change in the outpatient clinic of Marburg, Germany (sample previously described in: Jung et al., 2015). The treatment was conducted by trained therapists following a published CBTp manual in German language (Lincoln, 2006). The number of treatment sessions the patients participated in ranged from 6 to 42. The criterion for ending therapy was either the completion of the full number of sessions covered by the health insurance, or that patient and therapist concluded to have achieved the main therapeutic goals. However, in 15 cases the patient initiated discontinuation at an earlier time-point (reasons: lack of motivation to continue, inpatient treatment, change of residence) and in two cases the therapist initiated premature termination (reasons: substance dependency, acute suicidality). Data was collected before the first therapy session (Baseline) and after the last therapy session (Post). Informed consent was obtained from all participants and the trial was approved by the Ethical Committee of the Department of Psychology of the University of Marburg. Inclusion criteria were (1) having a psychotic disorder as indicated by the Structured Clinical Interview for DSM-IV (SCID; Wittchen et al., 1997), (2) scoring $\geq$ 3 on at least one positive or negative symptom item of the Positive and Negative Syndrome Scale (PANSS; Kay et al., 1987), (3) age between 18 and 65 years and (4) sufficient German language skills to communicate with the therapist.

2.2. Measures

Amotivation was measured using a German version of the Brief Negative Symptom Scale (BNSS; Kirkpatrick et al., 2011). The BNSS is a semi-structured interview based on 13 items measuring blunted affect, alogia, asociality, anhedonia and avolition. According to the two factor structure of negative symptomatology (Blanchard and Cohen, 2006; Horan et al., 2011), we used the motivation and pleasure factor (e.g. amotivation, anhedonia etc.) as an indicator for motivational impairments. The psychometric properties have been reported as excellent for the English version (Kirkpatrick et al., 2011). Based on the current sample, the German BNSS showed very good internal consistency at baseline for the motivation and pleasure factor (α =.89) and at post measurement (α =.88).

Table 1
Sample Characteristics and descriptive data.

Sample characteristics	*M (SD)* or number	*d*
Sex (male/female)	35/23	
Age	35.67 (12.69)	
Years of education	13.98 (3.72)	
Relationship status	n = 56	
Married	5	
Single	44	
Close partnership	7	
Employment status	n = 56	
Full time	19	
Part time	11	
Unemployed	26	
Antipsychotic medication (yes/no)	47/11	
Years of psychosis	12.07 (7.96)	
Number of hospitalizations	3.24 (2.85)	
BNSS		
MAP (Base)	2.75 (1.18)	
MAP (Post)	2.25 (1.07)	.47**
DAS		
DPBs (Base)	3.41 (1.27)	
DPBs (Post)	2.91 (1.31)	.39**
RFS		
Functioning (Base)	7.03 (2.43)	
Functioning (Post)	7.92 (2.30)	.39***
CDSS		
Depression (Base)	7.37 (4.57)	
Depression (Post)	4.14 (5.03)	.51***

Note. Sample characteristics and descriptive statistics. BNSS=Brief Negative Symptom Scale. MAP=Amotivation. DAS=Dysfunctional Attitude Scale. DPBs=Defeatist Performance Beliefs. RFS=Role Functioning Scale. CDSS=Calgary Depression Rating Scale for Schizophrenia. Descriptive statistics are depicted as mean scores and standard deviations.
d = Cohen's d.
*$p \leq .05$
**$p \leq .01$.
***$p \leq .001$.

Defeatist performance beliefs were measured using the DPBs factor of the German 15-item version of the Dysfunctional Attitude Scale (DAS; Weissman, 1979). Patients were asked to give self-report on a 7-point scale ranging from total disagreement to total agreement (e.g. "If you cannot do something well, there is little point in doing it at all."). The DPB scale showed good internal consistency (α=.87) at baseline as well as at post-assessment (α=.86) in the present study.

Functioning was assessed with the German version of the Role Functioning Scale (RFS; Goodman et al., 1993). This semi-structured-interview assesses four domains of functioning on the subscales working productivity, independent living, immediate social network and extended social network. Participants' answers were rated with regard to anchor points, ranging from 1 "low functioning" to 7 "optimal functioning". For subsequent analyses a mean score for total functioning was calculated with α =.81 at baseline and α =.81 at post-assessment.

Depressive symptoms were assessed the German version of the Calgary Depression Rating Scale for Schizophrenia (CDSS; Müller