Psychiatry Research 189 (2011) 43–48

Contents lists available at ScienceDirect

Psychiatry Research

journal homepage: www.elsevier.com/locate/psychres

Negative expectancy appraisals and defeatist performance beliefs and negative symptoms of schizophrenia

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ARTICLE INFO

Article history:
Received 8 March 2011
Received in revised form 19 May 2011
Accepted 23 May 2011

Keywords:
Dysfunctional beliefs
Cognitive model of negative symptoms
Treatment

ABSTRACT

Negative symptoms have clear functional implications in schizophrenia and are typically unresponsive to current treatments. The cognitive model of negative symptoms suggests that dysfunctional beliefs are influential in the development and maintenance of negative symptoms and schizophrenia. The current study reports on a preliminary investigation of a new measure of Negative Expectancy Appraisals (specifically beliefs about limited probability of success and perception of limited cognitive resources), and also evaluates whether dysfunctional beliefs are more closely linked to particular subdomains of negative symptoms. Sixty two individuals with schizophrenia completed measures of dysfunctional beliefs and were rated on negative symptoms. Analyses indicated that the endorsement of beliefs regarding low expectations for success and perception of limited resources (Negative Expectancy Appraisals) are robustly associated with diminished experience negative symptoms (avolition, asociality, and anhedonia), but are not associated with negative symptoms reflecting diminished expressivity (blunted affect, alogia). Similarly, Defeatist Performance Beliefs are modestly related to diminished experience, but not diminished expression, negative symptoms. Negative Expectancy Appraisals were also robustly linked to depressive symptoms. Results from the current study provide evidence that dysfunctional beliefs are clearly relevant to consider in relation to negative symptoms, and may represent a fruitful treatment target.

1. Introduction

Researchers have consistently demonstrated that negative symptoms are moderately to strongly associated with community functioning and laboratory performance-based measures of functioning (Evans et al., 2003; Leifker et al., 2009). Moreover, negative symptoms represent a critical unmet treatment need (Kirkpatrick et al., 2006), as pharmaceutical and psychosocial interventions do not tend to impact negative symptoms, or do so only to a minimal degree (Buckley and Stahl, 2007). Importantly, negative symptoms do not seem to be merely an artifact of depressive or psychotic symptoms (Emsley et al., 2003), nor can they be explained by the pervasive neurocognitive impairment inherent in schizophrenia (despite being correlated; Harvey et al., 2006).

Despite the clear clinical and functional implications of negative symptoms, factors which contribute to their development, maintenance, and exacerbation are poorly understood, and there is little agreement about the likely causes of negative symptoms (Avery et al., 2009). Over 20 years ago, John Strauss proposed several factors that underlie negative symptoms including fear of stressful social situations, avoidance of stigmatization, loss of hope and self-esteem, and the belief that improvement is not possible due to being diagnosed with a mental disorder (Strauss, 1985; Strauss et al., 1989). There has been renewed interest in these constructs, exemplified by a recently proposed cognitive model of negative symptoms (Rector et al., 2005; Beck et al., 2009). The purpose of this paper is to provide an additional test of the cognitive model of negative symptoms by 1) considering whether dysfunctional beliefs are differentially related to previously identified facets of negative symptoms (e.g., Blanchard and Cohen, 2006), and 2) adding an additional belief dimension proposed by the model, but not previously explored in prior research.

1.1. Cognitive model of negative symptoms

The cognitive model of negative symptoms suggests that individuals with an inherited vulnerability to schizophrenia encounter significant difficulties (e.g., poor school performance, social problems) as they develop through adolescence and early adulthood due to the increasing complexity of life demands. These initial problems in social and occupational functioning are

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doi:10.1016/j.psychres.2011.05.032

influential in the formation of dysfunctional beliefs (e.g., expecting rejection when meeting a new person). These beliefs result in the selection of maladaptive behaviors such as social isolation and the diminished engagement in goal-directed behavior; consequently, there are limited opportunities to contradict negative or maladaptive beliefs. According to the model, negative symptoms arise from the interaction of the dysfunctional beliefs and subsequent behavioral choices.

The model proposes specific types of dysfunctional beliefs that may be associated with negative symptoms. Most frequently studied to date are Defeatist Performance Beliefs, or "overly generalized negative conclusions regarding their own task performance" (Beck et al., 2009, p. 152) (e.g., "If you cannot do something well, there is little point in doing it at all" or "People should have a reasonable likelihood of success before undertaking anything."). Defeatist Performance Beliefs are endorsed more strongly by individuals with schizophrenia compared to healthy controls, and correlate with negative, but not positive, symptom severity (Rector, 2004; Grant and Beck, 2009; Horan et al., 2010). Defeatist Performance Beliefs do evidence significant relationships with depression in some (small to medium effects; Rector, 2004; Grant and Beck, 2009; Horan et al., 2010), but not all (Perivoliotis et al., 2009), studies; however, these studies also suggest that the relationship between negative symptoms and Defeatist Performance Beliefs remains significant (and of a similar magnitude) after controlling for depressive symptoms.

Beck et al. (2009) also proposed that Negative Expectancy Appraisals are also important for negative symptoms. Negative Expectancy Appraisals involve perceptions of reduced future likelihood of pleasure (i.e., akin to conceptualizations of anticipatory pleasure c.f. Kring, 1999), acceptance (e.g., others would not want to engage with them due to having a mental illness, failure and difficulty are inevitable due to having a diagnosis), success (e.g., will fail to meet goals or will have substandard performance), and perception of limited cognitive resources necessary to perform tasks associated with daily living (e.g., beliefs about the cost of effort, beliefs about abilities to persist with difficult tasks, limited abilities due to neurocognitive impairment). No studies have directly evaluated the contribution of Negative Expectancy Appraisals to negative symptoms, probably due in part to a lack of an available assessment measure for this cognitive domain. However, related concepts, such as beliefs about self-efficacy (Pratt et al., 2005; Avery et al., 2009), evidence significant relationships with negative symptoms, thus providing limited evidence that Negative Expectancy Appraisals have promise.

1.2. What negative symptoms are being modeled?

One major limitation of the prior research is that prior studies have typically explored associations between beliefs and global indices of negative symptoms rather than different negative symptom domains. This is an important distinction given studies (see reviews by Blanchard and Cohen, 2006; Foussias and Remington, 2010) suggesting that the structure of negative symptoms may be best represented by a two-factor model involving a diminished experience factor (comprised of anhedonia, asociality, and avolition) and a diminished expression factor (comprised of blunted affect and alogia). Given that the dysfunctional beliefs described in the model primarily focus on expectations regarding performance of behaviors (Negative Expectancy Appraisals) and the consequences of failed performance (Defeatist Performance Beliefs), it seems reasonable to conclude that these dysfunctional beliefs would be more strongly related to negative symptoms that involve drive, motivation, interest, and engagement in behavior (i.e., avolition, anhedonia, asociality); rather than symptoms characterized by diminished outward expression (i.e., blunted affect and alogia).

1.3. Current study

This study is an extension of prior work investigating the cognitive model of negative symptoms. The primary question of interest is whether the relationship between dysfunctional beliefs and negative symptoms varies based on the negative symptom domain assessed. A secondary aim is to provide a preliminary report on the potential utility of including additional dysfunctional belief domains (Negative Expectancy Appraisals) for understanding the negative symptoms of schizophrenia. Based on the cognitive model and prior research, we hypothesized that Negative Expectancy Appraisals and Defeatist Performance Beliefs would be significantly correlated with diminished experience negative symptoms but not diminished expression symptoms.

Ancillary aims included investigating the relationship among dysfunctional belief domains based on prior evidence of significant relationships among belief measures (Grant and Beck, 2009; Horan et al., 2010), and hypothesizing that the relationship between negative symptoms and dysfunctional beliefs would remain significant after statistically controlling for psychotic and depressive symptoms (in line with prior work; Grant and Beck, 2009). Finally, prior studies of Defeatist Performance Beliefs investigated whether negative symptoms were associated with greater dysfunctional belief endorsement broadly or whether they are uniquely associated with belief domains proposed by the model. As these prior studies have reported conflicting results (Rector, 2004; Grant and Beck, 2009 versus Horan et al., 2010); we included an additional secondary aim of investigating whether Defeatist Performance Beliefs and Negative Expectancy Appraisals were associated with negative symptoms to a greater degree than Need for Approval (i.e., non-model) beliefs.

2. Methods

2.1. Participants

Seventy four individuals with schizophrenia or schizoaffective disorder were recruited from outpatient clinics affiliated with the University of Maryland Baltimore or the Baltimore Veteran's Affairs Medical Center as part of a larger study investigating the psychometric properties of a newly developed negative symptom instrument (The Collaboration to Advance Negative Symptom Assessment in Schizophrenia; Blanchard et al., 2011). Of these 74 individuals, only 62 were able to complete dysfunctional belief measures due to time constraints. Thus all data reported in the results are from this subset of the full sample. Participants were identified via chart review or recommendation from their mental health clinician. Inclusion criteria were: 1) diagnosis of schizophrenia or schizoaffective disorder; 2) age between 18–60 years; 3) currently being seen by a psychiatrist at one of the participating clinics. Exclusion criteria were: 1) other DSM-IV diagnosis (except substance use disorders); 2) substance dependence within the past 6 months; 3) substance abuse within the past month; 4) history of significant head injury or mental retardation; 5) significant neurological disease; 6) not proficient in English; 7) unable to participate at time of assessment due to intoxication or severe psychotic symptoms. Study procedures were approved by local Institutional Review Board (IRBs) and all participants provided informed consent. The sample was comprised of individuals with a chronic schizophrenia (diagnosed for approximately 20 years), primarily African–American, with a high school education. Approximately two-thirds of the sample was diagnosed with schizophrenia, one-third with schizoaffective disorder. Demographic characteristics for the sample are displayed in Table 1 and clinical characteristics (including Structured Clinical Interview for DSM-IV Axis I Disorders (SCID) diagnosis) are displayed in Table 2.

2.2. Materials

2.2.1. The Structured Clinical Interview for DSM-IV (SCID-I; First et al., 2001)

The SCID-I was used to establish clinical diagnoses. Clinical interviewers had a minimum of Master's-level training and extensive diagnostic experience including completion of the SCID-101 training course. To ensure ongoing diagnostic agreement, all clinical interviews were videotaped for regular weekly supervision by a doctoral-level psychologist.

2.2.2. The Clinical Assessment Interview for Negative Symptoms (CAINS; Forbes et al., 2010; Blanchard et al., 2011)

The CAINS is a new negative symptom measure that is intended to be responsive to recommendations from the National Institute of Mental Health (NIMH) consensus group advocating for a new instrument which addresses methodological shortcomings