



The impact of neuropsychological functioning and coping style on perceived stress in individuals with first-episode psychosis and healthy controls



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ABSTRACT

Stress is implicated in the development and course of psychotic illness, but the factors that influence stress levels are not well understood. The aim of this study was to examine the impact of neuropsychological functioning and coping styles on perceived stress in people with first-episode psychosis (FEP) and healthy controls (HC). Thirty-four minimally treated FEP patients from the Early Psychosis Prevention and Intervention Centre, Melbourne, Australia, and 26 HC participants from a similar demographic area participated in the study. Participants completed a comprehensive neuropsychological test battery as well as the Coping Inventory for Stressful Situations (task-, emotion- and avoidance-focussed coping styles) and Perceived Stress Scale (PSS). Linear regressions were used to determine the contribution of neuropsychological functioning and coping style to perceived stress in the two groups. In the FEP group, higher levels of emotion-focussed and lower levels of task-focussed coping were associated with elevated stress. Higher premorbid IQ and working memory were also associated with higher subjective stress. In the HC group, higher levels of emotion-focussed coping, and contrary to the FEP group, lower premorbid IQ, working memory and executive functioning, were associated with increased stress. Lower intellectual functioning may provide some protection against perceived stress in FEP.

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1. Introduction

Exposure to stress is associated with the development, onset and relapse of psychotic illness (Corcoran et al., 2003; Nuechterlein et al., 1994; Phillips et al., 2006). In individuals with psychosis, perceived stress – the degree to which life events are appraised as stressful – is influenced by a number of environmental and psychological factors, including familial expressed emotion, social support, self-esteem, resilience and self-efficacy (Lukoff et al., 1984; Macdonald et al.,

1998; Nuechterlein et al., 1994; Pruessner et al., 2011; Ventura et al., 2004). Coping style, both in response to psychotic symptoms and general life events, also contributes to the degree of stress experienced by individuals with psychosis (Lukoff et al., 1984; Phillips et al., 2009). Coping in response to general life stressors is commonly classified according to task, avoidant and emotional strategies (Endler and Parker, 1990b; Skodol, 1998). Task-focussed coping involves the use of behavioural or cognitive problem-solving techniques when confronted with stress. Avoidance-coping mechanisms involve behavioural or cognitive avoidance, including a reliance on social supports or distraction with unrelated activities to avoid thinking about the stressful situation. Responding to stressful situations with emotional outbursts, self-preoccupation, or fantasy, reflects an emotion-focussed coping style. These coping styles are not mutually exclusive and individuals can display low to high levels of each in various

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combinations and in response to different situations. Nevertheless, coping styles tend to be conceptualised as enduring or trait-based characteristics (Folkman et al., 1986; Skodol, 1998).

People with psychotic disorders have been observed to display increased emotional reactivity to daily life stressors (Horan et al., 2007; Myin-Germeys et al., 2001) and maladaptive coping mechanisms (Horan and Blanchard, 2003; Horan et al., 2007; Jansen et al., 1998; Macdonald et al., 1998; van den Bosch et al., 1992). They also use fewer task- and more avoidant- and emotion-focussed coping strategies (Horan et al., 2007; Jansen et al., 1998; Macdonald et al., 1998; Phillips et al., 2009; van den Bosch et al., 1992; Ventura et al., 2004), suggesting an impaired or restricted psychological ability to adapt to stress. A similar pattern of coping has been found in young people at ultra-high risk for psychotic disorder (Phillips et al., 2012) and adolescents experiencing persistent subclinical psychotic symptoms (Lin et al., 2011). Greater use of avoidant or emotion-focussed coping has been associated with higher psychological stress (Horan and Blanchard, 2003; Strous et al., 2005) and psychiatric symptomatology, including state anxiety and positive and negative psychotic symptoms (Lysaker et al., 2005; Macdonald et al., 1998; van den Bosch et al., 1992). Contrastingly, the use of task-focussed coping has been associated with lower levels of state anxiety and positive and negative symptoms (Lysaker et al., 2005; Macdonald et al., 1998; van den Bosch et al., 1992).

Neuropsychological abilities – cognitive resources available to perform goal-directed behaviours and conceivably, identify, evaluate and respond to minor and major stressors in daily life – may play a key role in the degree of stress experienced by individuals with psychosis. It is well established that neuropsychological functioning is often impaired in psychotic disorders (Heinrichs and Zakzanis, 1998; Mesholam-Gately et al., 2009). However, surprisingly few studies have examined whether neuropsychological deficits directly contribute to perceived stress or stress reactivity in psychosis. Bak et al. (2008) found a significant weak negative association between IQ and symptom-related distress in individuals with schizophrenia, but executive functioning ability was unrelated. Horan and Blanchard (2003) found that neuropsychological functioning (visual memory) did not significantly contribute to the prediction of negative mood following psychosocial stress in schizophrenia patients. Two studies using the experience sampling method assessing moment-to-moment emotional reaction to daily life stress, also found that neuropsychological functioning was not associated with perceived stress levels in patients with schizophrenia (Morrens et al., 2007; Myin-Germeys et al., 2002). However, sensitivity to stress (i.e., affective response to stress) was inversely associated with neuropsychological functioning (Morrens et al., 2007; Myin-Germeys et al., 2002). Specifically, participants with the best neuropsychological performances across various domains showed larger decreases in positive affect and larger increases in negative affect in response to daily stress, compared with participants with the poorest or intermediate neuropsychological performances. In the only study to our knowledge that recruited a first-episode psychosis (FEP) sample and healthy controls (HC), a negative relationship between neuropsychological functioning and perceived stress was found in the HC group, but not in the FEP group (Aas et al., 2011).

These limited and inconclusive findings highlight a need for better understanding into the roles that coping style and neuropsychological functioning play in perceived stress in psychotic disorders. With respect to neuropsychological functioning, most studies only investigated the impact of memory and executive functioning on perceived stress (see Aas et al. (2011) for exception). Comprehensive examination of neuropsychological functioning is warranted given the evidence for widespread neuropsychological deficits in psychotic disorders (Mesholam-Gately et al., 2009). Additionally, most of the previous studies were conducted in chronic schizophrenia samples, with the influence of coping and neuropsychological functioning on

perceived stress at the outset of psychosis receiving scant attention. The factors influencing perceived stress may vary over the course of illness, with potential adaptations to symptoms and changes in coping and functioning over time (e.g., Strous et al., 2005). Relative to newly diagnosed patients, people with well-established psychotic disorders will likely have experienced more stressors, relapses and medications, possibly show greater neurocognitive impairments, and have enduring maladaptive coping strategies. Thus, knowledge into the factors influencing stress at different stages of psychotic illness has implications for prognosis and early versus later intervention.

The aim of this study was to examine the impact of neuropsychological functioning and coping style on perceived stress in people with FEP and HC. We hypothesised that better global intellectual functioning, memory and executive functioning would be associated with lower perceived stress in both FEP and HC groups. It was further hypothesised that after accounting for neuropsychological functioning, both emotion-focussed and avoidant-focussed coping would contribute to higher perceived stress, and task-focussed coping to lower perceived stress in both groups.

2. Methods

2.1. Participants

The participants were 34 neuroleptic-naïve or minimally treated FEP patients, recruited from the Early Psychosis Prevention and Intervention Centre (EPPIC), Melbourne, Australia. Participants were enrolled in a larger study examining stress and hypothalamic-pituitary-adrenal axis functioning in FEP and the relationship with clinical and neuropsychological characteristics (Garner et al., 2011). Inclusion criteria based upon the EPPIC entry criteria, were (1) aged 15–25 years, (2) experience of a first episode of psychosis, and (3) resident in the EPPIC catchment area (north/north-western suburbs of Melbourne). Exclusion criteria were (1) > 10 days of treatment with any psychotropic medication, (2) IQ < 70, or (3) organic brain disorder/significant medical illness. For the current study, only participants who completed the coping and perceived stress measures and neuropsychological assessment were included.

Twenty-six HC participants were recruited from similar socio-demographic areas through advertisements and friends/neighbours of the patient group. Exclusion criteria for controls included a current or past history of psychiatric illness or any psychiatric illness in the immediate family, in addition to the exclusion criteria described for the patient group. The study was approved by the local Human Research and Ethics Committee and written informed consent was obtained from all participants and their parent/legal guardian (if < 18 years old).

2.2. Measures

All assessments were conducted by trained research assistants upon entry to the study.

2.2.1. Clinical assessment

Diagnosis was established in FEP patients according to DSM-IV criteria using the Patient Edition of the Structured Clinical Interview for DSM-IV for Axis I disorders (SCID-I/P) (First et al., 2001). Control participants were administered the Structured Clinical Interview for DSM-IV Non-Patient edition (SCID-I/NP) to confirm inclusion (First et al., 2002).

In FEP participants, severity of positive psychotic symptoms over the previous 2 weeks was measured using the Brief Psychiatric Rating Scale (BPRS), expanded version 4 (Ventura et al., 1993) and negative symptoms were assessed with the Scale for the Assessment of Negative Symptoms (SANS) (Andreasen, 1984). Level of depressive and anxiety symptoms were rated with the Hamilton Depression Rating Scale (HAM-D) (Hamilton, 1960) and Hamilton Anxiety Rating Scale (HAMA) (Hamilton, 1959), respectively.

2.2.2. Coping and perceived stress measures

Coping was measured using the adult version of the Coping Inventory for Stressful Situations (CISS) (Endler and Parker, 1990a), a 48-item self-report scale that assesses the ways people react to various difficult, stressful or upsetting situations. Scores for three coping styles are derived: task-focussed, emotion-focussed and avoidance-focussed coping. Higher scores indicate greater use of the particular coping style. The CISS subscales all showed a high level of internal consistency in our sample, Cronbach's α 0.88–0.94 for FEP participants and α 0.83–0.93 for healthy controls.

The Perceived Stress Scale (PSS) (Cohen et al., 1983) was used to examine perceived stress. The PSS is a 14-item self-report scale that assesses individuals'

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