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Alexithymia in schizophrenia: Associations with neurocognition and emotional distress

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ABSTRACT

While alexithymia, or difficulties identifying and describing affect, has been commonly observed in schizophrenia, little is known about its causes and correlates. To test the hypothesis that deficits in emotion identification and expression result from, or are at least related to, deficits in neurocognition and affective symptoms, we assessed alexithymia using the Toronto Alexithymia Scale (TAS-20), symptoms using the Positive and Negative Syndrome Scale (PANSS), and neurocognition using the MATRICS battery among 65 adults with schizophrenia spectrum disorders in a non-acute phase of illness. Partial correlations controlling for the effects of social desirability revealed that difficulty identifying feelings and externally oriented thinking were linked with greater levels of neurocognitive deficits, while difficulty describing feelings was related to heightened levels of emotional distress. To explore whether neurocognition and affective symptoms were uniquely related to alexithymia, a multiple regression was conducted in which neurocognitive scores and affective symptoms were allowed to enter to predict overall levels of alexithymia after controlling for social desirability. Results revealed both processing speed and anxiety uniquely contributed to the prediction of the total score on the TAS-20. Results suggest that dysfunctions in both cognitive and affective processes may be related to alexithymia in schizophrenia independently of one another.

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1. Introduction

Alexithymia refers to a range of interrelated difficulties, including (a) identifying feelings and distinguishing between feelings and bodily sensations of emotional arousal; (b) describing feelings to others; (c) constricted imaginal processes; and (d) a stimulus-bound, externally orientated cognitive style (Taylor et al., 1997). In contrast to constructs such as mentalization and metacognition, alexithymia focuses specifically on awareness and expression of one's own emotions. Heightened levels of alexithymia in a number of different schizophrenia samples (Stanghellini and Ricca, 1995; Cedro et al., 2001; Todarello et al., 2005; Van't Wout et al., 2007; van der Meer et al., 2009; Koelkebeck et al., 2010; Kubota et al., 2011) have led several authors to hypothesize that alexithymia may be a vulnerability factor for the development of schizophrenia (Van't Wout et al., 2007; van der Meer et al., 2009), and more specifically may be an underlying cause of social dysfunction (Van't Wout et al., 2007).

A range of studies has sought to better understand the presence of alexithymia among persons with schizophrenia by examining its links to other features of illness, particularly symptoms. Stanghellini and Ricca (1995) found that patients with a predominantly non-paranoid, negative symptom presentation were significantly more likely to be identified as alexithymic compared to those presenting primarily with paranoia, whereas Van't Wout et al. (2007) found that negative symptoms were linked with deficits in identifying feelings only. These authors also noted greater alexithymia among male patients and among male first-degree relatives compared to control subjects. Examining alexithymia and positive symptoms, Cedro et al. (2001) found alexithymia to be more prevalent in persons with the paranoid subtype of schizophrenia compared to matched healthy controls. Other findings challenge the link between alexithymia and positive and negative symptoms. For instance, one study found that negative symptoms abated during the course of one year while alexithymia remained stable (Todarello et al., 2005). This study also observed no significant associations between alexithymia and global psychopathology, positive symptoms, or depression. Similar to others, van der Meer et al. (2009) again found that persons with schizophrenia experienced more difficulties identifying their feelings than others without psychosis, and noted that alexithymia

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was positively correlated with depression. Gender differences did not emerge as significant in this study. As a whole, this body of work is equivocal and at best raises the possibility of a very complicated relationship between alexithymia and symptoms.

Research has to our knowledge, however, yet to examine neurocognition and alexithymia simultaneously in schizophrenia. Neurocognitive deficits have been commonly observed in schizophrenia (Saykin et al., 1991), and there are several reasons to think that they may be linked to alexithymia. Neurobiological research suggests that persons with alexithymia have impaired interhemispheric communication and may have brain structures or functional circuits that are dysfunctional or deficient (Larsen et al., 2003; Taylor and Bagby, 2004; Wingbermühle et al., 2012). Lane (2008) also proposes a neural model of alexithymia that has some empirical support. In a nonclinical population, higher levels of alexithymia have been associated with poorer neurocognitive test performance, specifically poorer memory and nonverbal intelligence (Onor et al., 2010). Among asymptomatic individuals with HIV, greater alexithymia has been significantly related to poorer attention, working memory, spatial reasoning, and visuospatial organization (Bogdanova et al., 2010). Research on synthetic metacognitive capacity, or the ability to form complex representations of oneself and others, has found that unawareness of one's emotions in schizophrenia is related to poorer verbal memory, processing speed, and executive functioning (Lysaker et al., 2011b), and those who lack the ability to distinguish their own thoughts and feelings tend to have poorer working memory (Lysaker et al., 2007). An improved understanding of the links between alexithymia and neurocognition seems essential if we are to better understand how alexithymia may develop and how it may be addressed in treatment, which appears indicated given its associations with functional impairments (Vanheule et al., 2010) and poor psychotherapeutic outcomes (Ogrodniczuk et al., 2011).

To address this issue the current study has examined the relationship of concurrent assessments of alexithymia, neurocognition, and symptoms among a sample of persons with schizophrenia spectrum disorders. Our primary prediction was that greater levels of alexithymia would be related to poorer neurocognition. Of note, we assessed a range of different neurocognitive domains and considered the examination of each specific domain to be exploratory in nature. In regard to symptoms, we predicted that alexithymia would be positively and significantly related to depression and anxiety given repeated findings that alexithymia is related to depressive and anxiety disorders (e.g., Parker et al., 1993; Honkalampi et al., 1999; Marchesi et al., 2000, 2005; Saarijarvi et al., 2001; Leweke et al., 2011). We did not anticipate that alexithymia would be significantly related to positive and negative symptoms given the equivocal findings of previous studies.

Of note, to assess alexithymia we used the Toronto Alexithymia Scale-20 (TAS-20; Bagby et al., 1994a). While this is the most utilized measure of alexithymia (Lumley, 2000; Bagby et al., 2006), it is possible that scores would be biased by socially desirable responding given that the TAS-20 is a self-report measure. Helmes et al. (2008), for instance, found that among three samples of undergraduate students, alexithymia as measured by the TAS-20 was significantly and negatively related to socially desirable responding. In particular, lower levels of alexithymia were significantly related to higher scores on a measure of social desirability that taps unintentional, or unconscious, attempts to portray oneself in a positive light. Given these findings and general concerns about self-report, we included a measure of social desirability to be used as a covariate in other analyses if necessary. Finding Helmes et al. (2008) distinction between intentional and unintentional socially desirable responding interesting, we utilized a two-factor model of the Marlowe–Crowne Social Desirability Scale (MCSDS; Crowne and Marlowe, 1960) that allowed for similar distinctions.

2. Methods

2.1. Participants

Participants were 65 adults with diagnoses of schizophrenia ($n=42$) or schizoaffective disorder ($n=23$), as confirmed by the Structured Clinical Interview for DSM-IV (SCID; Spitzer et al., 1994). Participants were enrolled as part of a larger study on cognitive-behavioral therapy and work outcomes for persons with schizophrenia spectrum disorders. All participants were recruited from a local Veterans Affairs medical center and were in a post-acute phase of illness as defined by no hospitalizations and no changes in psychotropic medication or housing within 30 days prior to enrollment. Other exclusion criteria included active substance dependence, history of traumatic brain injury, and mental retardation, which were determined through chart review and the SCID. On average (mean ± standard deviation), participants were 50.54 ± 10.75 years old, had 12.74 ± 2.31 years of education, and had 5.02 ± 4.68 lifetime psychiatric hospitalizations, with the first occurring at age 29.66 ± 12.92. Thirty-six participants identified as African American, 28 as Caucasian, and one as Latino. Sixty-one were male, and four were female.

2.2. Instruments

2.2.1. The Toronto Alexithymia Scale

The Toronto Alexithymia Scale-20 (TAS-20; Bagby et al., 1994a) is a 20-item self-report measure of alexithymia. Items are rated using a five-point Likert scale, with participants indicating level of agreement with statements that assess both the affective and cognitive elements of the alexithymia construct. Total scores range from 20 to 100, with higher scores indicating greater degree of alexithymia. Though the present study analyzed alexithymia as a dimensional construct, it has been suggested that scores exceeding 60 are indicative of clinically significant alexithymia (Taylor and Taylor, 1997). In addition to a total score, the TAS-20 yields three factor scores: difficulty identifying feelings, difficulty describing feelings, and externally oriented thinking. Evidence of acceptable internal consistency, test–retest reliability, and construct, concurrent, and convergent validity has been reported (Bagby et al., 1994a, 1994b). For this study sample, acceptable internal consistency was found using Cronbach's alpha ($\alpha=0.75$). Research suggests the TAS-20 is appropriate for use with persons from a variety of backgrounds (Parker et al., 2003).

2.2.2. The Positive and Negative Syndrome Scale

The Positive and Negative Syndrome Scale (PANSS; Kay et al., 1987) is a 30-item rating scale scored by trained research staff following chart-review and a semi-structured interview. Items are rated on a scale ranging from one to seven, with higher scores reflective of greater symptom severity. A series of studies summarized by Kay et al. (1987) supports the construct, convergent, and discriminant validity of the PANSS. For this study, we utilized three of five factor-analytically derived components: positive symptoms, negative symptoms, and emotional discomfort. The emotional discomfort component contains items that assess anxiety, depressed mood, guilt, and active social avoidance. Good to excellent intraclass correlations for each scale and most items suggest reliable symptom assessment using the factor components (Bell et al., 1994). For this study, assessment of inter-rater reliability was found to be high to excellent with intraclass correlations for blind raters observing the same interview ranging from 0.84 to 0.93. To reduce the overall number of correlations produced in this study, the cognitive and hostility components were not examined given a lack of predictions regarding the relationships between these factors and alexithymia.

2.2.3. The Measurement and Treatment Research to Improve Cognition in Schizophrenia

The Measurement and Treatment Research to Improve Cognition in Schizophrenia (MATRICS; Nuechterlein et al., 2008) is a widely used standard battery for measuring cognition in schizophrenia. It consists of ten tests that assess seven cognitive domains, including processing speed, attention/vigilance, verbal and nonverbal working memory, verbal learning, visual learning, reasoning and problem solving, and social cognition. Individual tests were selected for their high reliability and validity, and the measure as a whole is also reliable and valid for generating a composite score for cognitive functioning.

2.2.4. The Marlowe–Crowne Social Desirability Scale

The Marlowe–Crowne Social Desirability Scale (MCSDS; Crowne and Marlowe, 1960) is a 33-item self-report measure that prompts participants to indicate if questions about their experiences are true or false. Items include culturally