

Psychiatric Symptoms Are Differentially Associated with Verbal Fluency Performance in Patients with Schizophrenia and Affective Disorders

Submission ID 3007061

Submission Type Poster

Topic Clinical Science

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SUBMISSION DETAILS

Research Type Human Subjects Research

Poster or Oral Presentation Oral Only

Background Despite verbal fluency (VF) being a common task in psychiatric research, there is very little consensus on the nature of VF deficits in psychiatric populations and their implications for our knowledge about cognitive and specifically linguistic functioning in these populations. Previous studies have found that negative symptoms, including alogia, are associated with poorer overall VF production in patients with schizophrenia (SCH), while studies investigating positive symptoms, including formal thought disorder, have yielded mixed results. Because most studies didn't analyze additional VF measures such as clustering and lexical characteristics, it remains unclear whether the association between negative and positive symptoms and VF performance in patients with schizophrenia reflects abnormalities in linguistic and/or semantic processing or other aspects of cognition. Furthermore, it is uncertain whether these associations are specific to patients with schizophrenia, while the associations with manic and depressive symptoms are understudied.

Methods We recruited 58 German-speaking inpatients diagnosed with either schizophrenia (N = 36), bipolar disorder (BD; N = 10), or major depression (DEP; N = 12). All patients were assessed on conventional symptom scales including the SANS/SAPS, HAMD, and YMRS, and were further administered the semantic (SF; animals) and letter (LF; P) fluency tasks (60 s). The following dependent variables were analyzed: correct words, error rate, response latencies, switching rate, cluster size, idiosyncratic word production rate, and word frequency.

Results BD produced significantly larger clusters and had significantly higher idiosyncratic word production rates on SF compared to both SCH and DEP, while overall word frequency on SF differentiated between all patient groups. Overall negative symptomatology and specifically alogia were negatively associated with overall performance and positively with between-cluster response latencies on SF. Alogia was not significantly associated with other VF variables. Cluster size and overall word frequency on SF were positively associated with depressive and negatively with manic symptoms, idiosyncratic word production rate on SF was positively associated with manic symptoms, while positive symptoms were only negatively associated with the frequency of the first

three words on SF.

Discussion Previous evidence for an association between negative and positive symptoms, and VF performance in SCH has been to some extent replicated in a diverse psychiatric sample. Because alogia was not significantly associated with VF variables other than overall productivity and between-cluster response latencies, we found no evidence that alogia is associated with deficient processing within the semantic memory or mental lexicon. Yet, its positive association with between-cluster response latencies possibly suggests that alogia reflects transdiagnostic dysfunctional connectivity between the prefrontal and temporal cortices and, thus, inefficient lexical access. Furthermore, clinical levels of mania were associated with normal cluster sizes, in line with one previous study. Intriguingly, cluster sizes did not differ between SCH and DEP, indicating a similar level of the semantic deficit with possibly different underlying mechanisms. Additionally, manic symptoms were associated with relatively unusual (but appropriate) word production, indicating aberrant saliency of words during lexical access in mania. Further research regarding word frequency is needed to adequately interpret those results. Finally, LF performance was diagnostically and symptomatically unremarkable.

Keyword

Keywords
verbal fluency
Negative Symptoms
Manic symptoms
depressive symptoms

Poster Award No

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DISCLOSURE

Financial Relationships

Disclosure No, I have nothing to disclose.

Statement 1 I Agree.

Statement 2 I Agree.

Statement 3 I Agree.

Statement 4 I Agree.

Statement 5 I Agree.

Statement 6 I Agree.

Statement 7 I Agree.