Psychiatric symptoms are differentially associated with verbal fluency performance in patients with schizophrenia and affective disorders

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PSYCHIATRIC SYMPTOMS ARE DIFFERENTIALLY ASSOCIATED WITH VERBAL FLUENCY PERFORMANCE IN PATIENTS WITH SCHIZOPHRENIA AND AFFECTIVE DISORDERS

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INTRODUCTION

- Research on verbal fluency in psychotic and affective syndromes is typically conducted with a diagnostic approach which is epistemologically problematic because: (1) psychotic and affective symptoms are not pathognomonic, (2) subthreshold-symptomatic people are considered healthy, despite the possible presence of psychopathological phenomena, (3) validity of the current diagnostic criteria remains highly disputed, and (4) misdiagnoses are common in affective syndromes.

- Associations between symptoms and verbal fluency performance have mainly been investigated in patients with schizophrenia, with the results alarmingly heterogenous in the significance of the p-values, strengths of the correlation coefficients, and associations with different symptoms subscales and symptoms.

- Transdiagnostic symptom-based research is lacking, while additional performance measures are critically underinvestigated.

METHODOLOGY

- **SUBJECTS:** 58 German-speaking patients diagnosed with either schizophrenia (F20.x; N = 36), bipolar disorder (F31.x; N = 10), or major depressive disorder (F32.x and F33.x; N = 12) according to ICD-10 criteria

Age (years)	43.207 ± 14.396
Education (years)	10.310 ± 1.614
Percentage of males (%)	69.0
Symptoms	
SAPS	23.603 ± 21.738
SAPS positive FTD	10.759 ± 9.046
SANS	30.759 ± 22.491
SANS alogia	4.638 ± 3.856
YMRS	7.259 ± 7.053
HAMD	12.207 ± 7.982

VERBAL FLUENCY ASSESSMENT:	NEUROPSYCHOLOGICAL ASSESSMENT:
- animals (semantic fluency; SF) and <p> (letter fluency; LF)	- Trail Making Test parts A and B
- 60 seconds for each task	- Digit span backward (Wechsler Memory Scale)
- Clusters analyzed according to Troyer et al. (1997); clustering variables calculated according to Gabrić & Vandek (2020, in review)	- Multiple-choice Vocabulary Intelligence Test
- Dependent variables: correct words (raw), words per cluster, switching rate, word frequency, word idiosyncrasy	- D2 test of attention

RESULTS

Alogia and productivity on SF

$H_{(2)} = 7.415$, $p = .025$
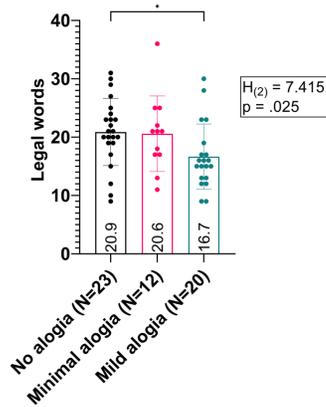
Results indicate impaired access to semantic memory in mild alogia.

Alogia and switching rate on SF

$H_{(2)} = 7.284$, $p = .026$; Quade's$_{Age}$: $F_{(2, 52)} = 5.052$, $p = .010$, $\eta^2 = .163$
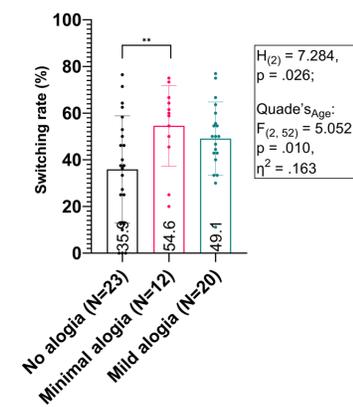
Patients with minimal and mild alogia were less likely to build a cluster after producing a switch on SF compared to patients with no alogia.

Depression and switching rate on SF

$H_{(3)} = 11.507$, $p = .009$; Quade's$_{Age}$: $F_{(3, 54)} = 4.476$, $p = .007$, $\eta^2 = .199$
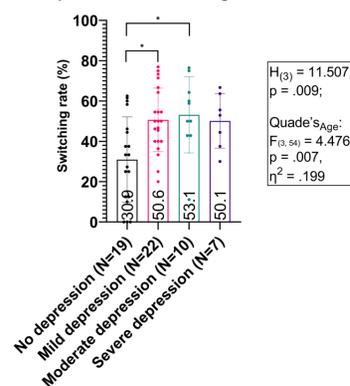
Patients with depression were less likely to build a cluster after producing a switch on SF compared to patients with no depression.

Mania and words per cluster on SF

$U = 280.5$, $p = .019$, $r_b = .524$
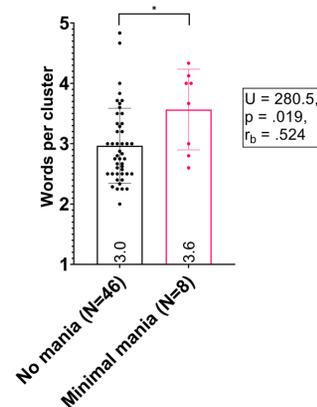
Patients with minimal mania (YMRS: 13–19) were more likely to build clusters of three or more words on SF compared to patients with no mania. This effect was not observed for the few patients with mild and moderate mania.

Depression and word frequency on SF

$H_{(3)} = 6.992$, $p = .072$
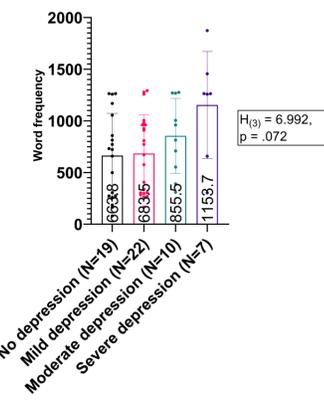
Descriptive data suggest that patients with moderate and severe depression produced words of higher frequencies compared to patients with no or mild depression.

Mania and word idiosyncracy on SF

$U = 430.0$, $p = .003$, $r_b = .558$
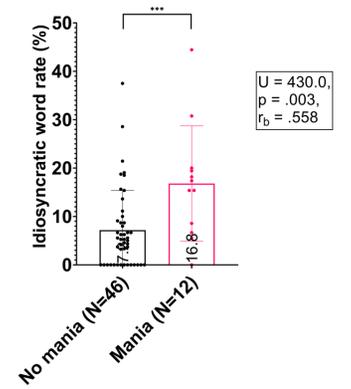
Patients with mania produced idiosyncratic words (word uttered by only one patient) at significantly higher rates compared to patients with no mania on SF.

STATISTICS
- FIRSTLY, associations between symptom severity and verbal fluency performance were explored via Spearman correlation coefficients.
- SECONDLY, these associations were further investigated by analyzing the associations from significant correlations with the Kruskal-Wallis test (Dunn-Bonferroni for post hoc comparisons). Quade's rank analysis of covariance was performed where confounding factors needed to be controlled.
- NOTE that this poster contains only a selection of the more interesting results.

CONCLUSIONS

- We report a number of previously uninvestigated associations between psychiatric symptoms and verbal fluency performance.

- Mild alogia appears to be associated with impaired access to semantic memory and less efficient functional connectivity between subcategorical co-hyponyms.

- Depression may also be associated with less efficient functional connectivity between subcategorical co-hyponyms. Further, moderate and severe depression may be associated with higher word frequencies, underscoring the potential of verbal fluency tasks in use as predictive and diagnostic tools in psychiatry.

- Minimal but not mild and moderate mania was associated with normal or supranormal cluster size, while mania in general was further associated with higher production of idiosyncratic words. Thus, (hypo)mania may be associated with normal or exaggerated functional connectivity between subcategorical co-hyponyms.