

Philipps

The relationship between self-reported gesture use and neuropsychological functioning in a transdiagnostic sample of patients with mental disorders

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Poor gesture performance and comprehension skills have been linked to deficits in other communicative modalities in patients with different mental disorders, while deficits in cognitive functioning have also been linked to a variety of symptoms and syndromes.

- Transdiagnostic approaches allow to consider mental disorders on a
- The social perception subscale of the BAG scale was negatively associated with attention and verbal fluency (specifically of alternating semantic categories).
- The social production subscale was positively associated with word knowledge and verbal fluency (specifically of a specific phonemic category).

continuum instead of by comparison.

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- The present study aimed at exploring the relationship between different cognitive functions and self-reported gesture use by applying a network approach and including different diagnostic groups. Based on previous findings, we hypothesized that:
 - Increased gesture production, specifically in a social context, would be linked to higher rates in verbal fluency and word knowledge.
 - Increased gesture perception, specifically in a social context, would be linked to lower rates in measures of (visual) attention.
- Centrality measures were considered. They revealed high scores in betweenness, closeness and strength for social gesture production. Betweenness for social gesture production was also high, but the overall expected influence in the network model was very negative.

Centrality measures for both phonemic and semantic verbal fluency were overall high.



Methods

Data acquisition and analysis

- Participants: 58 patients with schizophrenia spectrum disorders, 56 patients with major depression disorder, 22 patients with bipolar disorder
- The participants filled in the BAG scale on gesture use and performed neuropsychological tests pertaining measures of attention (d2 test, digit span), verbal fluency (RWT) and word knowledge (MWTB).
- A network analysis using the EPICglasso estimator was carried out. All variables were standardized using a z-transform. Out of the 10 nodes, 4 pertained to the different dimensions of gesture use and perception, the other 6 pertained to different neuropsychological measures.

The Brief Assessment of Gesture (BAG) scale

The BAG scale asks participants to rate their usage and perception of gesture in four different dimension:

Gesture Production	Perception Dimension
The amount of produced gesture	The perception of gesture information
"I've been told before that I gesture a lot when I talk."	"During a lecture, it's very distracting to me if the speaker gestures a lot."
Social Production	Social Perception
Gesture usage in a direct or goal-	The empathic properties (e.g. being

Fig. 1: Network plot showcasing the associations of gesture dimensions assessed by the BAG scale and neuropsychological measures.

In an exploratory analysis, a healthy participant group (N=52) was included in the network analysis. The new model did not show the previously observed associations. The healthy participant group was too small to run a separate network analysis.

Discussion

Social cognitive processes might aid in bridging the gap between cognitive functioning and gesture use – and therefore communicative abilities.

oriented way

"When talking in noisy places, I often gesture a lot to make myself understood over the noise." amazed or surprised) of gesture perception

"When I see someone gesturing a lot, I often wonder if I would have used the same gestures." We interpret the positive association between social gesture production and phonemic verbal fluency and word knowledge as facilitation of expressive and communicative abilities across different modalities.

In contrast, the negative association between social gesture perception and semantic verbal fluency and attention suggests potential challenges in processing socially relevant cues among individuals with greater cognitive impairment.

Open questions remain as to why only the social gesture dimensions show associations to neuropsychological measures. Like-wise, only the alternating semantic categories were connected to the social gesture perception.

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