

# Syntactic deficits in language comprehension in individuals with schizophrenia and Broca's aphasia

Rajith K Ravindren <sup>a, b, c\*</sup>, Ashok Kumar P <sup>a, b</sup>

<sup>a</sup> Department of Psychiatry, Government Medical College, Kozhikode, Kerala, India, 673008

<sup>b</sup> Department of Psychiatry, Institute of Mental Health and Neurosciences (IMHANS), Kozhikode, Kerala, India, 673008

<sup>c</sup> Neuroscience Research Laboratory, Institute of Mental Health and Neurosciences (IMHANS), Kozhikode, Kerala, India, 673008

**Background:** The syntax is defined as the system of rules for combining words into phrases and sentences. Individuals with schizophrenia, especially those with formal thought disorder (FTD), are considered to have language impairments at their lexical, semantic and discourse level. Syntax in these patients is usually considered to be preserved. Broca's aphasia is a disorder in which the syntactic abilities of the patients are compromised. This study aims to find the syntactic errors in language comprehension in individuals with formal thought disorder and those with Broca's aphasia.

**Method:** Twenty-six Malayalam sentences of varying word order and syntax were read out to the patients. Sentences were devoid of any real-world meaning. This was done to prevent the subjects from using their knowledge in parsing the sentences. Examiner then asked questions regarding the information conveyed by the sentences. The purpose of the experiment was to assess the subject's ability to understand 'who did what to whom in the sentences.

**Results:** Ten patients with formal thought disorder (mean age = 45.5 years) and 9 patients with Broca's aphasia (mean age = 47.1 years) participated in the study. Those with FTD had a mean test score of 15.4 (SD = 4.4), while those with Broca's aphasia scored 12.5 (SD = 5.5). The difference was not statistically significant. Both groups did poorly with simple noun phrase pronouns, three-place passive, three-place cleft object, object-subject relative, object-object relative, passive conjoint agent, simple active reflexive and conjoined sentences. Both groups did well with noun phrase raising, optative, imperative, two-place cleft object, two-place active, three-place active, three reflexive

expressions, active conjoined theme, simple active pronoun and truncate passive.

**Conclusion:** This study shows that syntax deficit in Broca's aphasia is not absolute. For active, imperative and optative sentences, the syntax is fairly preserved in language comprehension. This may be relevant while communicating with these patients. While in schizophrenia, we have demonstrated that deficits in syntax occur in passive sentences and with pronouns.

(\*Corresponding author: [rajith.mail@gmail.com](mailto:rajith.mail@gmail.com))