Time Distortions in Schizophrenia

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Introduction

• Attempts to integrate cognitive deficits as core symptoms in psychiatric disorders have failed so far (Keefe, 2008).

• Impaired time comprehension in schizophrenia (Seemann, 1976).

• Short-term memory for temporal information is impaired (Dieng et al., 2000).

• Long-term temporal memory is impaired in schizophrenia, e.g., as action representation (Voss et al., 2010), planning action sequences (Nees et al., 2005), & action monitoring (Franck et al., 2001).

Objectives

• How do patients with schizophrenia process short- and long-term temporal information under varying degrees of information availability?

• Are there specific deficits of information processing strategies associated with behavioral impairments in patients?

Methods

Participants

- Patients with schizophrenia (SZ)
  - n = 34 (11 females, age 31 years +/- 11 years; IQ = 105 +/- 11)
  - PANSS: 21.4 (positive), 25.9 (negative), 46.4 (general)
  - Chlorpromazine equivalent of daily medication dosage: 181mg +/- 98mg

- Healthy controls (C)
  - n = 34 (11 females, age 31 years +/- 14 years; IQ = 104 +/- 12)

Temporal-order reconstruction task

- 20 words shown for 6s each
- Incidental: no instructions
- Intentional: instructions to remember
- Semantic clustering: only possible for underlined pairs
- After both lists: reconstructing the order with a set of cards

Script-generation task

- Goal: generate events of everyday activities.
- Either in chronological or inverse order
- Either a routine or a non-routine activity
- 1st and last event are given for an event header
- 4 Conditions:
  - “Doing the laundry” (routine, chronological)
  - “Going to a funeral” (non-routine, chronological)
  - “Buying groceries” (routine, inverse)
  - “Going to the photographer” (non-routine, inverse)

Results

Temporal-order reconstruction task

<table>
<thead>
<tr>
<th>Condition</th>
<th>Chronological</th>
<th>Inverse</th>
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</thead>
<tbody>
<tr>
<td>Generation</td>
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<td>Errors</td>
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<td>Sequencing</td>
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<td>Intentional</td>
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<tr>
<td>Boundary</td>
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</tbody>
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Script-generation task

Discussion / Conclusion

• Intentional short-term temporal memory results in performance improvement in controls and error improvement in patients.

• Long-term temporal memory contents are retrieved slower with more sequencing, boundary, and intrusion errors in patients.

• Patients imprecisely access and process temporal information from short- and long-term memory.

• Impaired time comprehension may contribute to symptomatic cognitive and strategic inefficiency in schizophrenia patients (Landgraf et al., 2010, 2011a/b).

References:


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References:


