Development and Validation of the Working Memory Self-Assessment Scale

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INTRODUCTION

• Working memory is dedicated to the simultaneous storage and manipulation of cognitive representations in order to complete complex activities like, for example, mental calculation. There are strong relationships between working memory and executive functioning (i.e., the cognitive system that ensures the adaptation to new situations).

• Because working memory is involved in many daily life activities, its ecological evaluation is a key dimension of the neuropsychological assessment of people with cognitive impairments.

• Numerous studies show that aging is associated with a decline in working memory capacities and executive functioning.

AIM OF THE STUDY

1. Develop a French self-assessment scale of working memory.
2. Examine the psychometric properties of this new scale.

METHOD

PARTICIPANTS

• 19 Young (18 – 30 years)
• 20 Old (60 – 74 years)
• 20 Old-Old (75 – 90 years)

WORKING MEMORY SELF-ASSESSMENT SCALE (WMSS)

• 30 items
• 6-points Likert scale (“Never” to “Always”)
• e.g. “Mental calculation is difficult for me.”

COGNITIVE TASKS

- Storage: Digit Span (Wechsler, 2000) + Block taping test (WMS-R; Wechsler, 1991) : forward modality
- Dual-task: Brown-Peterson Paradigm (Meulemans et al., 2007)
- Access: Word fluency (Cardebat et al., 1990)
- Inhibition: Incompatibility test (Zimmermann et al., 2009) + Stroup Paradigm (Godefroy et al., 2008)
- Shifting: Trail Making Test (Godefroy et al., 2008) + Adaptation of the Plus-Minus task (Miyake et al., 2000)
- Updating: PASAT (Meulemans et al., 2003) + Working memory test (Zimmermann et al., 2008)
- Selectivity: D2 test (Brickenkamp, 1991)

RESULTS

INTERNAL VALIDITY

The internal validity of the WMSS was strong as estimated by the Cronbach’s alpha coefficient (α = .93)

EXTERNAL VALIDITY

The external validity was assessed through partial correlations (controlling for years of education, Mill Hill score, and Mattis score) between the WMSS and the eight composite scores.

<table>
<thead>
<tr>
<th>Group</th>
<th>Shifting</th>
<th>Inhibition</th>
<th>Dual-task</th>
<th>Selectivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Young</td>
<td>-.45 (p = .07)</td>
<td>-.40 (p = .01)</td>
<td>-.56 (p = .02)</td>
<td></td>
</tr>
<tr>
<td>Old</td>
<td>-.40 (p = .03)</td>
<td>-.45 (p = .05)</td>
<td>-.55 (p = .04)</td>
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<tr>
<td>Old-Old</td>
<td>-.45 (p = .06)</td>
<td>-.40 (p = .02)</td>
<td>-.55 (p = .03)</td>
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</tbody>
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DISCRIMINABILITY

ANCOVA

( goof : years of education; Mill Hill score ; Mattis score)

F (2) = 2.48 (p = .09)

Planned comparisons

Old > Young

F(1) = 4.96 (p = .03)

REFERENCES


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