

Cross-sectional association between components of Motoric Cognitive Risk (MCR) syndrome and sociodemographic and neurocognitive measures: Evidence from the CompAS study

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BACKGROUND

Motoric Cognitive Risk (MCR) is a syndrome characterized by subjective cognitive complaints (SCC) and slow gait speed in the absence of cognitive impairment and preserved activities of daily living (Verghese et al., 2013).

MCR is associated with **cognitive impairment** and **dementia** (Verghese et al., 2013). Their individual components could be independently associated with cognitive decline (Pike et al., 2022).

The associations between cognition and sociodemographic variables and MCR components were explored.

METHODS

287 participants from the CompAS in pre-clinical stages were selected.

SCC presence was confirmed using the short Spanish version of “**Questionnaire d’auto-evaluation de la Memorie**” (QAM; Pereiro et al., 2021). Gait speed was measured using the “**Timed-Up & Go**” test (Figure 1).

Participants were classified into four groups: A) presence of both MCR criteria (**MCR**), B) absence of both MCR criteria (**no-MCR**), C) SCCs only (**SCC-MCR**), D) slowed gait only (**Gait-MCR**).

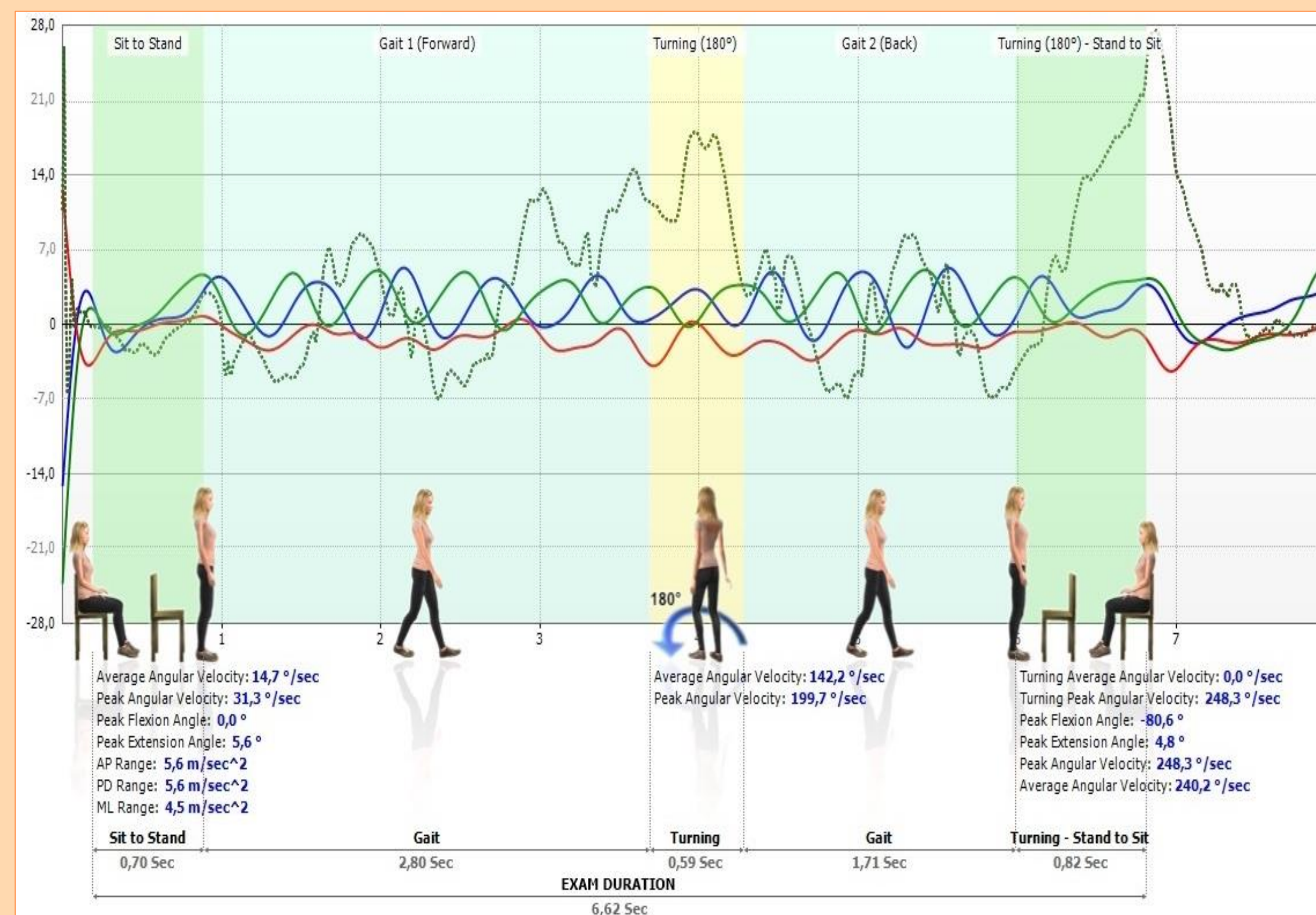
Sociodemographic and cognitive measures were compared across groups using the **Kruskal-Wallis** test.

RESULTS

- ✓ Statistically significant differences between groups after Bonferroni correction suggest that **no-MCR** has significantly more **years of schooling** than **MCR** group.
- ✓ **No-MCR** and **Gait-MCR** show significantly **higher scores** than MCR and SCC-MCR groups in **global cognition** and **memory**.
- ✓ **No-MCR** performs significantly **better** than MCR and SCC-MCR groups in **language** and **executive function**, while **MCR** shows **worse** performance than no-MCR in **attention** (Table 1).

Figure 1.

Timed-Up & Go test recorded with the Wiva® wireless inertial sensor.



REFERENCES

- Verghese, J. et al. (2013). Motoric cognitive risk syndrome and the risk of dementia. *The Journals of Gerontology: Series A, Biological Sciences and Medical Sciences*, 68(4), 412–418.
- Pike, K. E. et al. (2022). Subjective cognitive decline: Level of risk for future dementia and mild cognitive impairment, a meta-analysis of longitudinal studies. *Neuropsychology Review*, 32(4), 703–735.
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Table 1.

Kruskal-Wallis tests for differences in some sociodemographic, cognitive and affective measures across MCR groups ($df = 3$).

	<i>H</i>	<i>p</i>	ϵ^2 ^a	Pair comparisons ^b
Age	7.022	.071	.018	-
Years of schooling	8.375	.039	.022	B>A
MMSE	5.617	.132	.013	-
CAMCOG-R total	8.635	.035	.023	D>C, B>C, D>A_c
CVLT-IFR-A ^d	4.911	.178	.010	-
CVLT-STFR ^d	11.311	.010	.033	B>C,
CVLT-LTFR ^d	10.974	.012	.032	D>C
CAMCOG-memory	13.571	.004	.041	D>C, D>A
Boston	2.326	.508	.001	-
Semantic fluency	14.182	.003	.043	B>C, B>A
CAMCOG-R_language	6.126	.106	.015	-
Phonological fluency	8.207	.042	.022	B>A
CAMCOG-R_executive	5.484	.140	.012	-
*TMT-B ^d	4.758	.190	.010	-
*TMT-A ^d	10.312	.016	.029	A>B
CAMCOG-R_attention	4.539	.209	.009	-

Note: ^aEpsilon-squared, as an effect size measure. ^bA: MCR; B: no-MCR; C: SCC-MCR; D: Gait-MCR. ^cNot adjusted with Bonferroni correction for multiple comparisons. ^dCVLT-IFR-A: California Verbal Learning Test (Immediate Free Recall-A), CVLT-STFR: California Verbal Learning Test (Short Term Free Recall), CVLT-LTFR: California Verbal Learning Test (Long Term Free Recall), TMT-B: Trail Making Test B, TMT-A: Trail Making Test A. *The reaction time measurement should be interpreted considering that higher values represent worse performance.



CONCLUSIONS

The presence of SCCs, either alone or in combination with motor impairments (i.e., gait), appears to be the key criterion associated with lower cognitive performance.

