Cognitive intervention with Go and Chess in Early and Subjective cognitive decline: the COGniChESs study results with a meta-analysis

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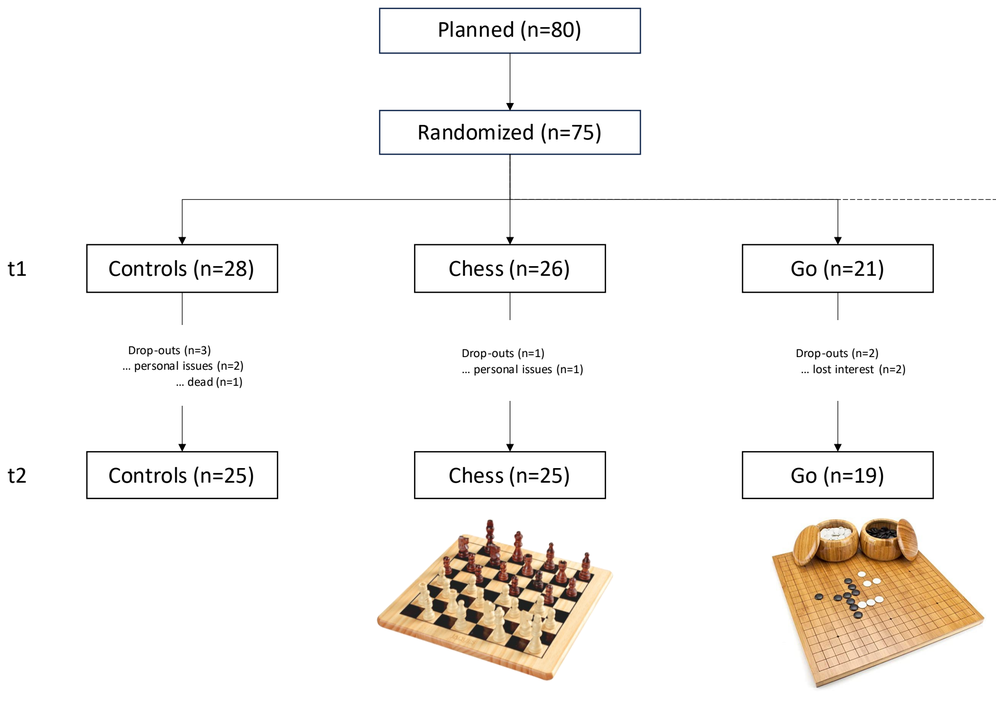
INTRODUCTION

Given the economic constraints of disease-modifying therapies, there is a growing interest in prevention and cognitive enhancement strategies for individuals at risk of dementia. In a previous meta-analysis, we found that leisure activities with **traditional board games** have shown **potential cognitive and mood benefits**, though randomized controlled data remain sparse and heterogeneous. **CogniChess** is the **first Italian study** aimed to assess whether **chess and/or go** could improve cognitive performance, mood, and quality of life in older adults with mild cognitive impairment (**MCI**) or subjective cognitive decline (**SCD**).

METHODS

Seventy-five participants aged ≥55 years with MCI or SCD were randomized to chess, go, or a control group. Participants in the intervention arms attended **12 weekly classes**. Cognition was assessed using **MoCA, digit span, Trail Making Test, and verbal fluency tasks**. Mood was measured with the Geriatric Depression Scale (**GDS**), and quality of life with **WHO-QoL** scale. Data were analyzed using t-tests, ANOVA, and linear mixed-effect models. To strengthen external validity, we **updated our prior meta-analysis** by incorporating these new results.



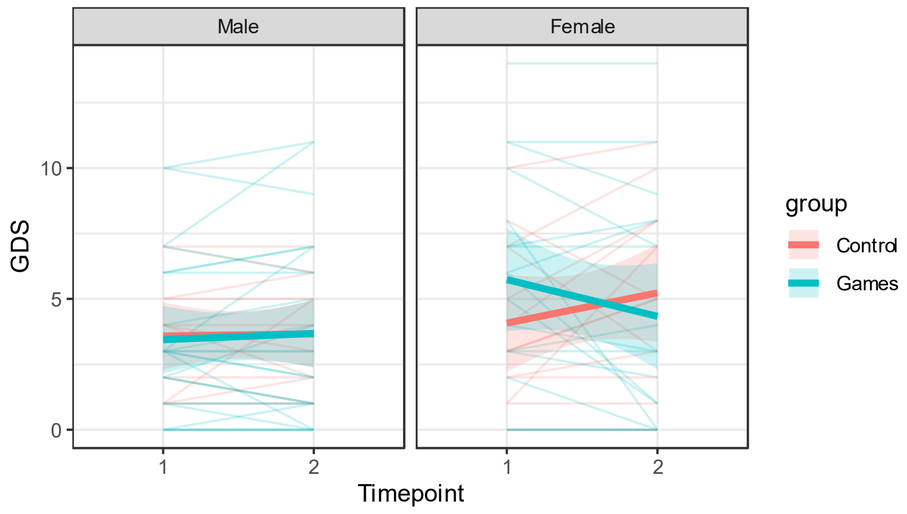
RESULTS

Of the 75 enrolled participants (age 71.6 ± 7.5 years; 46.3% female), 69 completed the study. Baseline demographic and clinical characteristics were balanced across groups. All groups demonstrated improvements in categorical fluency, but only the board games group reached statistical significance ($p < 0.05$). No significant between-group differences in overall cognitive scores were observed.

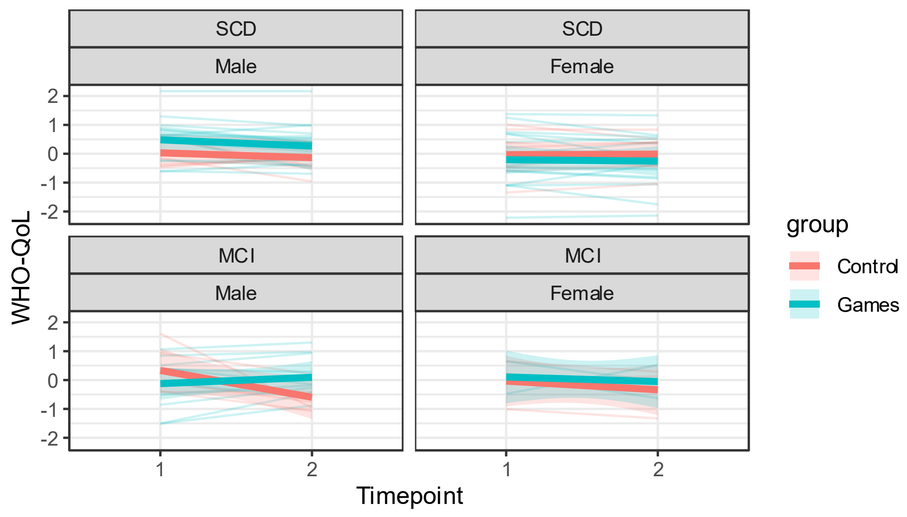
	Controls (n=25)			Games (n=44)		
Variable	**T1**	**T2**	**p**	**T1**	**T2**	**p**
MoCA	22.68 ± 5.47	23.40 ± 5.67	0.125	23.02 ± 3.91	23.89 ± 4.34	0.018
TMT-A	52.88 ± 27.03	47.60 ± 20.66	0.116	55.05 ± 35.70	52.00 ± 38.03	0.048
TMT-B	205.56 ± 168.34	193.48 ± 162.82	0.407	165.68 ± 109.05	169.66 ± 138.32	0.949
TMT B-A	152.68 ± 145.98	145.88 ± 147.20	1.000	110.64 ± 85.74	117.66 ± 110.00	0.822
CF	37.08 ± 14.47	40.00 ± 17.22	0.044	37.98 ± 10.16	41.41 ± 12.57	0.004*
DSB	4.08 ± 1.22	4.12 ± 1.20	0.974	4.05 ± 0.96	4.14 ± 1.17	0.575
DSF	5.76 ± 1.23	5.52 ± 1.08	0.298	5.52 ± 1.32	5.52 ± 1.09	1.000
DS - total	9.84 ± 2.29	9.64 ± 1.91	0.376	9.57 ± 1.98	9.66 ± 1.98	0.605
Cognitive z score	-0.14 ± 1.20	-0.02 ± 1.16	0.096	0.08 ± 0.87	0.10 ± 1.07	0.268
GDS	3.84 ± 2.66	4.48 ± 2.92	0.165	4.33 ± 3.58	3.95 ± 3.85	0.331
WHO-QoL	42.74 ± 6.85	39.63 ± 7.90	0.161	42.59 ± 10.52	41.52 ± 10.21	0.226

RESULTS

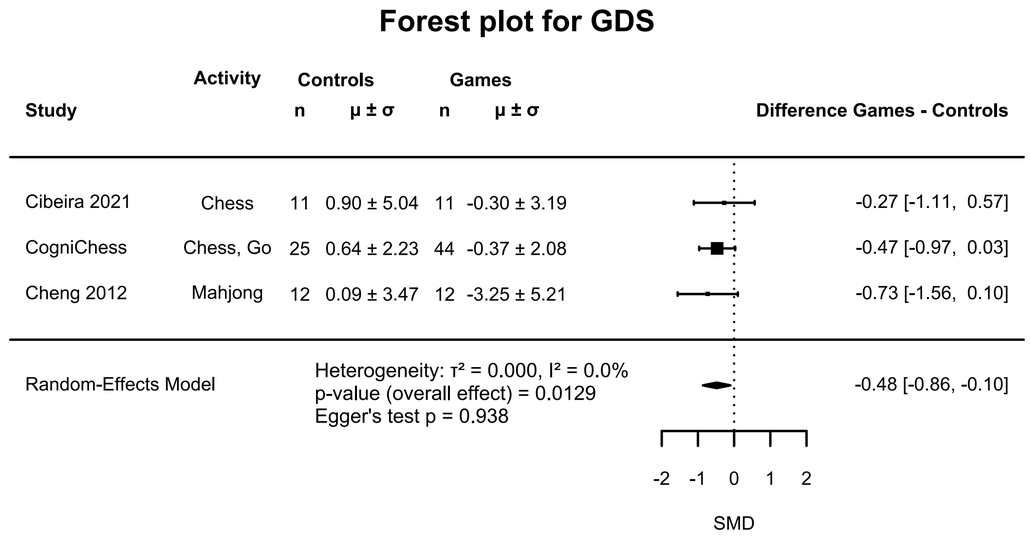
Linear mixed-effect models revealed a **significant group × diagnosis × time** interaction for **WHO-QoL ($p = 0.002$)**, indicating **improved quality of life in MCI** patients assigned to the games group.



Additionally, a **significant group × gender × time interaction** for **GDS ($p = 0.013$)** showed **reduced depression in female** participants in the games group at follow-up (marginal means: -1.3 points). No significant two- or three-way interactions emerged for cognitive outcomes.



Updated **meta-analysis** demonstrated a **significant reduction in GDS scores** associated with board games (SMD -0.48, $p = 0.013$), with no evidence of publication bias or heterogeneity. No cognitive outcome reached statistical significance.



CONCLUSIONS

In SCD and MCI individuals, board games did not show robust cognitive benefits beyond categorical fluency, which may reflect limited cognitive stimulation. However, the consistent **improvements in mood and quality of life**, particularly among **women and MCI** subjects, underscore the **psychological value** of such interventions, possibly through the social component. Our findings suggest that socially engaging games can foster emotional well-being and quality of life in older adults at risk of dementia, even in the absence of cognitive benefits.

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