

# The Impact of COVID-19 on Cognitive Functioning: A Comparative Study of Retired and Non-Retired Individuals 3 Months After COVID-19 Illness

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## INTRODUCTION



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- Middle-aged and older adults face increased vulnerability to cognitive difficulties for multiple reasons
- Notably, **retirement** is a risk factor for cognitive decline in later life.<sup>[1]</sup> The available literature is mixed on how cognitive abilities such as verbal fluency may be impacted by retirement.<sup>[2]</sup>
- Emerging research has also determined that COVID-19 may cause disturbances in several cognitive domains, particularly among individuals suffering from “long-Covid” symptoms<sup>[3]</sup>

## AIM

- Determine whether retirement is associated with greater impairments in cognitive functioning in a group of individuals who had COVID-19 infection.
- A secondary aim was to help identify differences between groups across cognitive domains, to identify areas in need of attention to support our aging population.
- **Hypothesis:** Retired participants will have lower global cognitive performance than working older adults due to retirement-related cognitive changes and potential effects of COVID-19 infection.

## METHODS

### PARTICIPANTS

- 73 English-speaking adults
- Age 55+
- 33 Retired
- Participants had documented COVID-19 infection  $\geq$  3 mo. prior to tele-neuropsychological testing.

### Cognitive measures included:

- Processing speed (*DKEFS Colour-Word Interference - trials 1,2*).
- Visual spatial reasoning (*JLO*).
- Executive functioning (*DKEFS Colour-Word Interference- trials 3,4*).
- Attention (*WAIS IV Digit Span, Brief Test of Attention*).
- Language (*NAB Naming, FAS, Animals*).
- Memory (*RCFT, NAB Shape Learning, HVLt-R*).
- T-scores from each test were combined to create a cognitive composite score.

- One-way ANCOVA was conducted to compare retired and non-retired groups on global cognition.
- Age, sex, and education were controlled for in this model.

## RESULTS

- There was no significant difference in global cognitive functioning [ $F(1, 69) = .213, p > .05$ ] between groups of retired and non-retired individuals (see *Figure 1*)

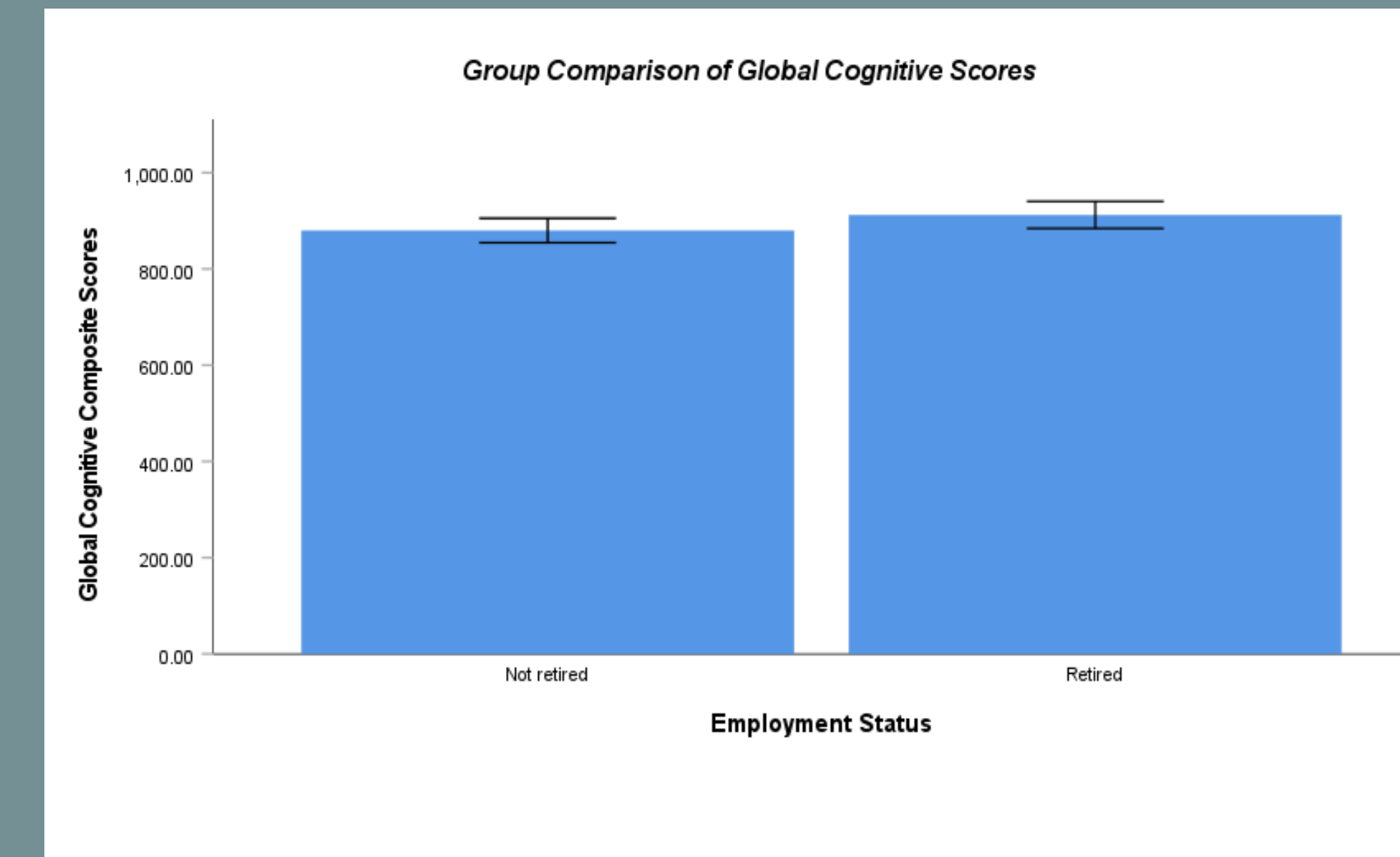


Figure 1. Working vs. retired group global cognitive score means; Error bars at 95% CI

- However, post-hoc analyses examining specific cognitive domains revealed significant group differences on language performance [ $F(1,67) = 4.07, p = .04$ ]. (See *Figure 2*).
- Retirees had better semantic (Animals), phonemic (FAS), and word finding (NAB Naming) performance compared to their working peers.

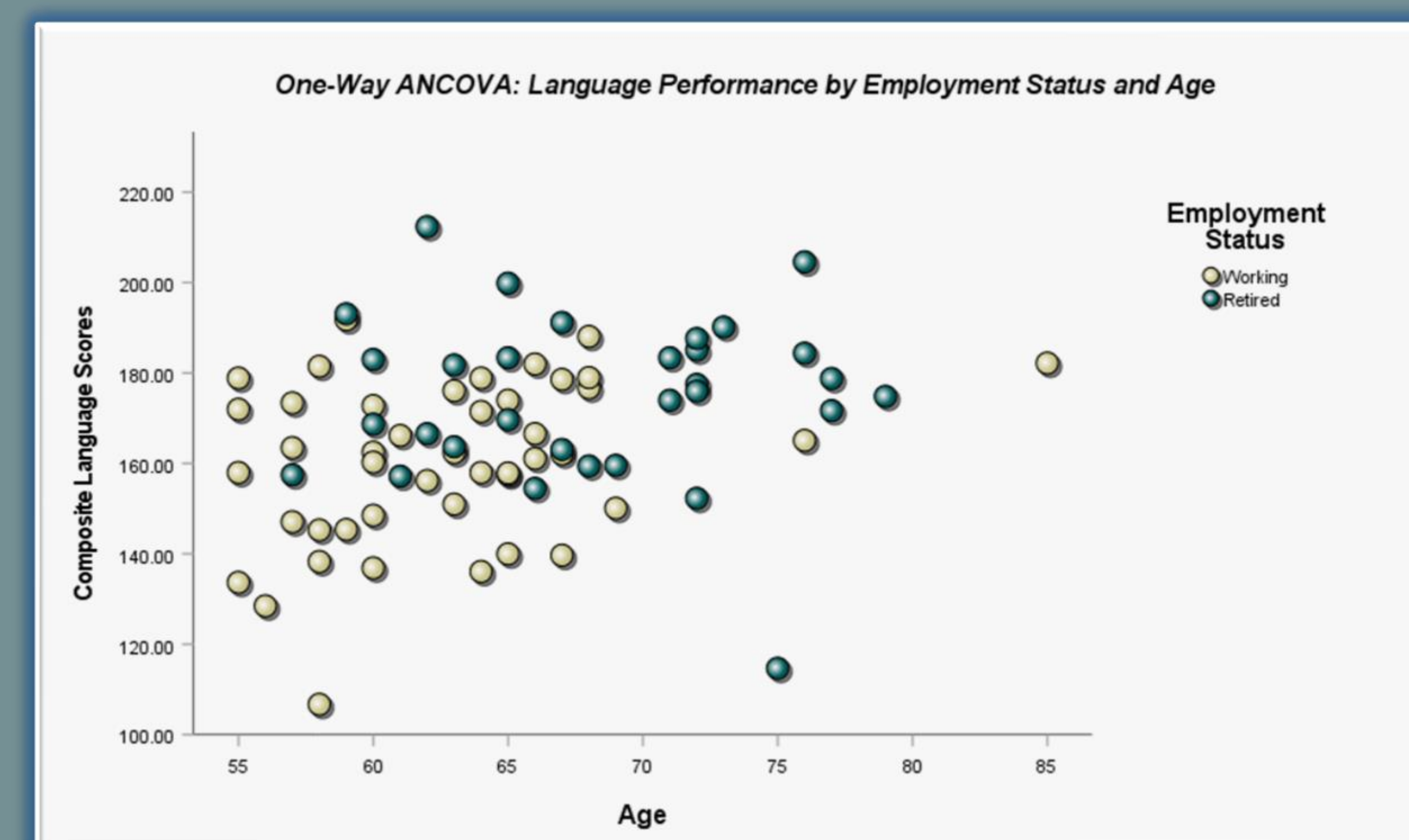


Figure 2. Language composite score by group and age, demonstrating language performance was higher in retired compared to working individuals

## CONCLUSION

- Findings suggest that retirement status alone does not significantly influence global cognitive functioning post-COVID-19 illness, when age, education level, and sex are accounted for in analyses.
  - Retirement may have a positive impact on specific language-related cognitive abilities
- Limitations: Our group of working adults included part-time, full-time, regular volunteers, & self-employed individuals, and did not account for possible sub-group differences.
- Further work is necessary to further flesh out potential relationships between retirement, cognition, and COVID-19 infection.

## REFERENCES

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