Changes in memory function in adults following SARS-CoV-2 infection: findings from an online study

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BACKGROUND

10-30% of non-hospitalized cases of SARS-CoV-2 infection are estimated to suffer from some Long Covid symptoms [1,2].

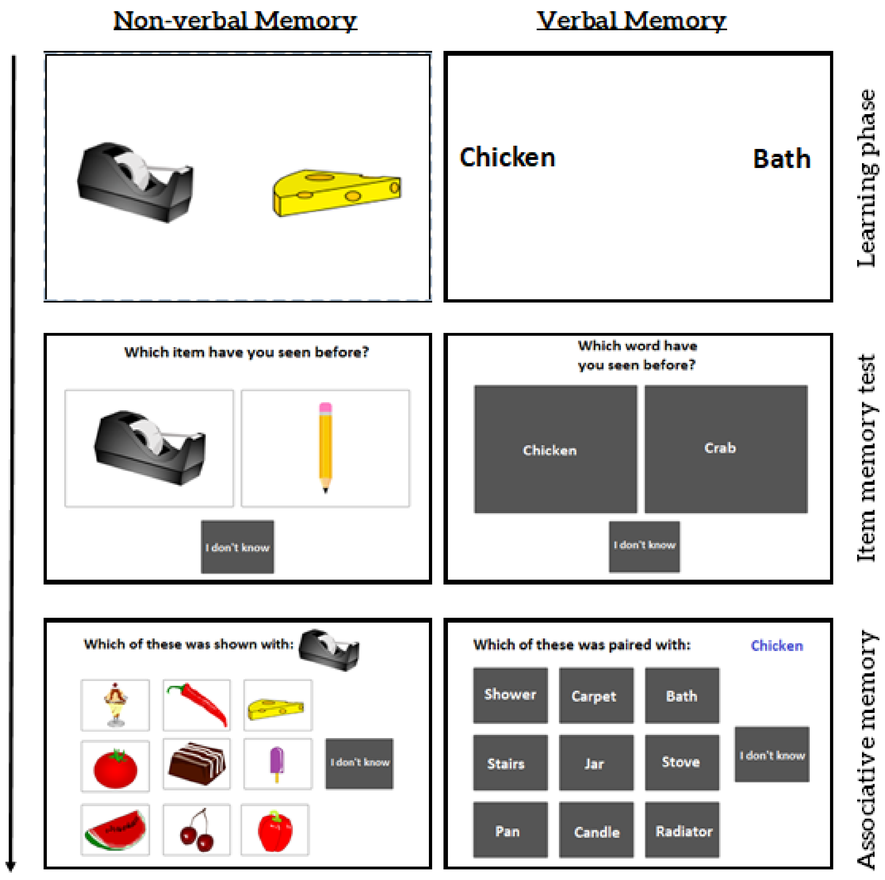
Up to 50% of individuals with other Long Covid symptoms reported also having problems with memory, cognition or concentration [3,7-10].

There are mixed results in regards to the protective effect of vaccination against Long Covid symptoms [4–6].

GUO ET AL. (2022) [9]

- Significant negative influence of Covid-19 status on memory performance.
- Used Item Memory Test for verbal stimuli only and Associative Memory Test for pictorial stimuli only.
- Associative memory is usually more affected in aging and in disorders affecting cognition.
- Impossible to disentangle the effect of memory type (item x associative) and stimulus type (words x pictures).

METHODS



PREREGISTRATION POSTER

- Data collection ongoing Feb 2022 - May 2023
- Data collection on Gorilla.sc consisting of a series of questionnaires and cognitive tasks.
- Participants recruitment mainly through social media, Long Covid support groups and word of mouth and to lesser extent through Prolific.co and Addenbrooke's hospital Long Covid clinic.

Health	Covid	Cognitive tasks
Height	Covid status	Nonverbal associative memory task
Weight	Vaccination status	Verbal associative memory task
Medical conditions	Vaccination details	Nonverbal item memory task
Lifestyle	Covid symptoms	Verbal item memory task
	Long Covid symptoms	Digit span memory task
	Timing	Category Fluency task
		Word/Syntax Understanding task
		Wisconsin Card Sorting Task

ANALYSIS

Analysis	Predictions	Between subjects	Within subjects	Dependent measures
Analysis 1 and 2: Replication of Guo et al. (2022)	Worse accuracy and slower RTs for C+	C+ vs.. C-		Verbal item memory accuracy / RTs
		C+ vs. C-		Nonverbal associative memory accuracy / RTs
Analysis 3 and 4: Comparison of mnemonic effect	Worse accuracy and slower RTs for C+ group in verbal item than nonverbal associative task	C+ vs. C-	Verbal item vs. nonverbal associative	Accuracy/RTs
Analysis 5: Disentangling memory effects	Worse memory in C+, possible effect of memory type or stimulus type or both	C+ vs. C-	Item vs. associative	Accuracy/RTs
			verbal vs. nonverbal	
Analysis 6: Effect of vaccination status	Better accuracy and RTs for C+ and vaccinated than C+ and non-vaccinated, no difference between C- and vaccinated x C- and nonvaccinated	C+ vs. C-		Accuracy and RTs for all cognitive tasks separately
		Vaccinated vs. Nonvaccinated		
Additional analyses	Explorative	C+ vs. C-		Digit span task, Category Fluency Task, Word/Syntax Understanding task, Wisconsin Card Sort Task

REFERENCES

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