

Cognitive Symptoms in Long COVID: Mixed Trajectories Regardless of Vaccination

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Introduction

- Long COVID is a complex, multisystemic disorder defined as the persistence of COVID-19 symptoms for over 12 weeks post-infection¹
- It affects over 1.9 million individuals in the UK² and often has long-term, debilitating consequences on lifestyle and daily functions³
- Long COVID commonly manifests itself in neurological and cognitive symptoms⁴, however this is poorly understood, and treatments are limited
- This longitudinal study investigated the **impact of vaccination on cognitive symptoms in post-infection long COVID patients**

Conclusion & Potential for Further Studies

- Vaccination has neither a positive *nor* negative impact on post-infection cognitive symptoms in long COVID
- Individuals demonstrate **variation in cognitive symptom trajectory over time, regardless of vaccination status**
- However, sex does appear to influence these trajectories
- More frequent follow-ups over a longer period are necessary to determine whether these short-term patterns are consistent over time
- Further studies could group individuals based on similar trajectories and aim to identify common factors which predict improvement or worsening of long COVID symptoms**

Frequency & severity of cognitive symptoms show mixed trajectories over time, regardless of vaccination; some individuals may improve, worsen, or remain the same!

Methods

Participants

- Community sample of individuals with self-reported long COVID symptoms
- Categorised into vaccinated ($n = 64$) and unvaccinated ($n = 25$)

Procedures

Questionnaire at baseline & 2-3 follow-ups over 9 months including:

Demographics, previous health, experiences of COVID & infection status, illness severity, self-reported ongoing symptoms, vaccination status

Rank frequency & severity of 5 cognitive symptoms:

- Difficulty concentrating
 - Forgetfulness
 - Brain fog
 - Tip-of-the-tongue (ToT) problems
 - Semantic Disfluency
- 1- Not at all
2- Yes, mildly & occasional
3- Yes, mildly & often
4- Yes, very severe & occasional
5- Yes, very severe & often

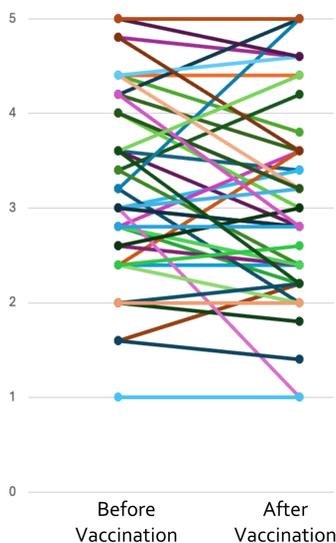
Participants & data derived from the COVCOG longitudinal study⁵



Results

Primary Analysis

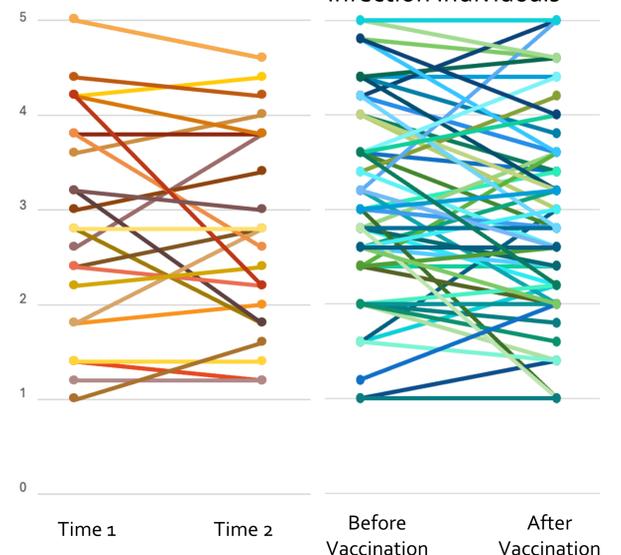
Average Cognitive Symptoms Before & After Vaccination in Post-Infection Individuals (1 or 2 Doses)



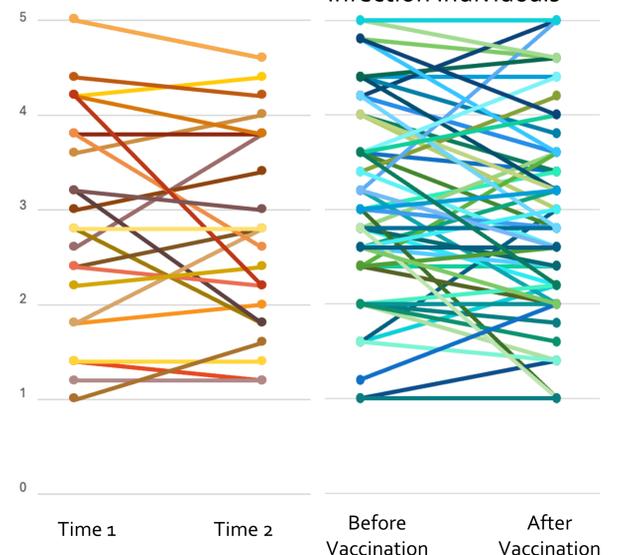
- Mixed responses to vaccination in post-infection patients
- No significant difference in frequency and severity of cognitive symptoms before and after vaccination ($p = 0.53$)
- Significant main effect of sex on cognitive symptoms ($p < 0.001$)**

Exploratory Analyses

Change in Average Cognitive Symptoms Over Time in Unvaccinated Post-Infection Individuals



Change in Average Cognitive Symptoms Before & After Vaccination in Vaccinated Post-Infection Individuals



- No significant difference in how cognitive symptoms changed over time in the vaccinated group, compared to the unvaccinated group ($p = 0.73$)
- Vaccination did not improve or worsen symptoms in post-infection patients
- Cognitive symptoms display mixed trajectories over time, with or without vaccination**

References

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