

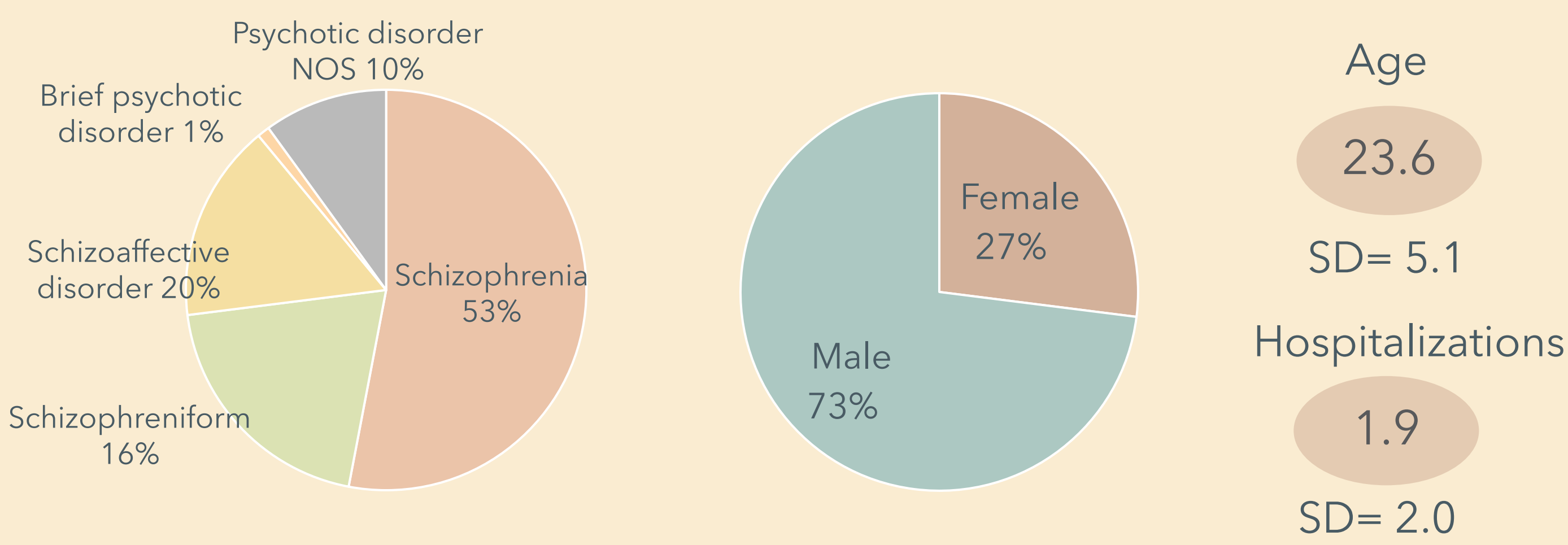
# THE CHICKEN OR THE EGG?

DO NEGATIVE SYMPTOMS CAUSE COGNITIVE IMPAIRMENTS OR DO COGNITIVE IMPAIRMENTS CAUSE NEGATIVE SYMPTOMS?

## INTRODUCTION

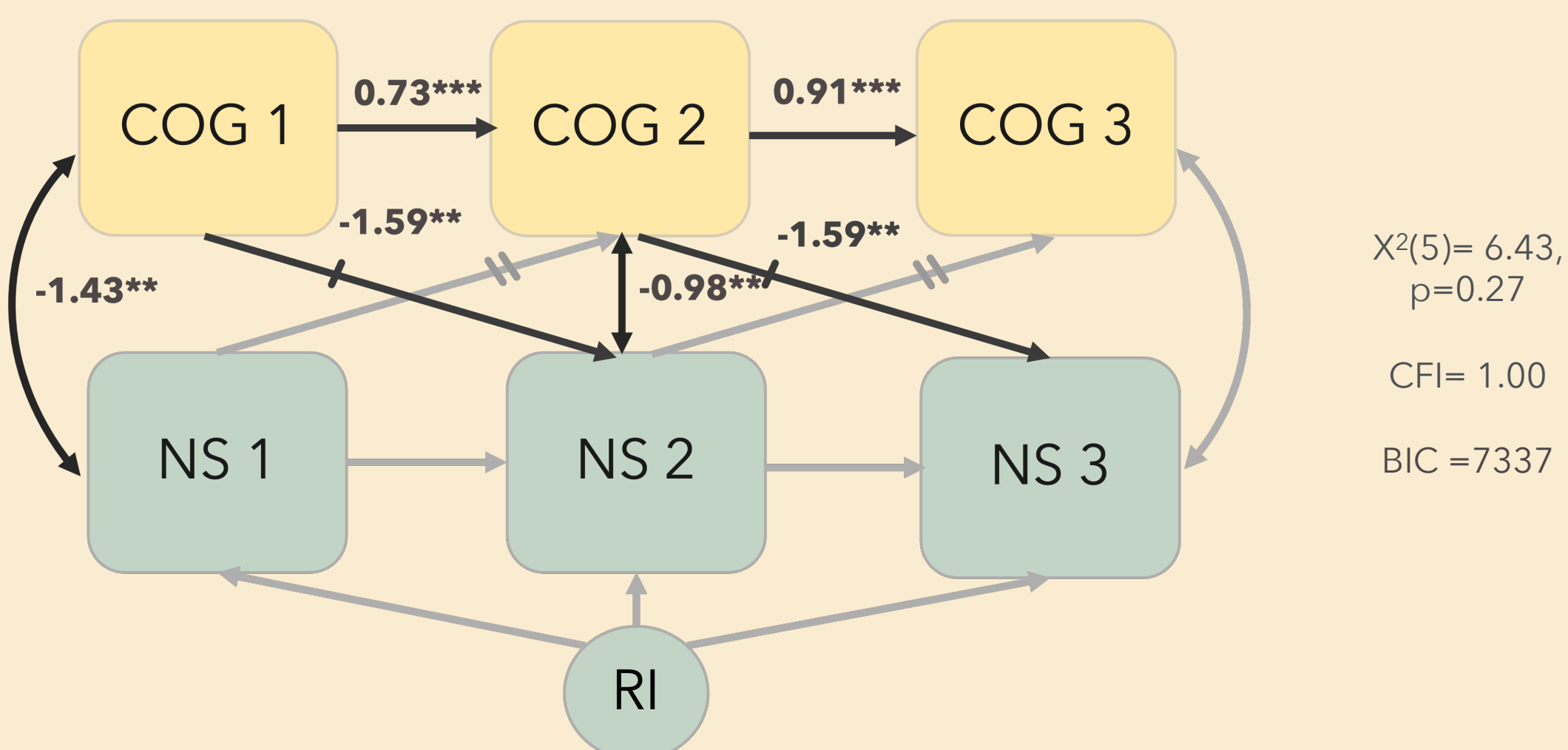
- Cognitive deficits and negative symptoms (NS) are core to psychotic disorder - they are consistently demonstrated to be related<sup>1,2</sup>
- However, **do cognitive deficits lead to NS, do NS lead to cognitive deficits or is the relationship bidirectional?**
- Understanding the NS- cognition relationship is important in understanding psychotic disorders and has treatment implications

## RESULTS

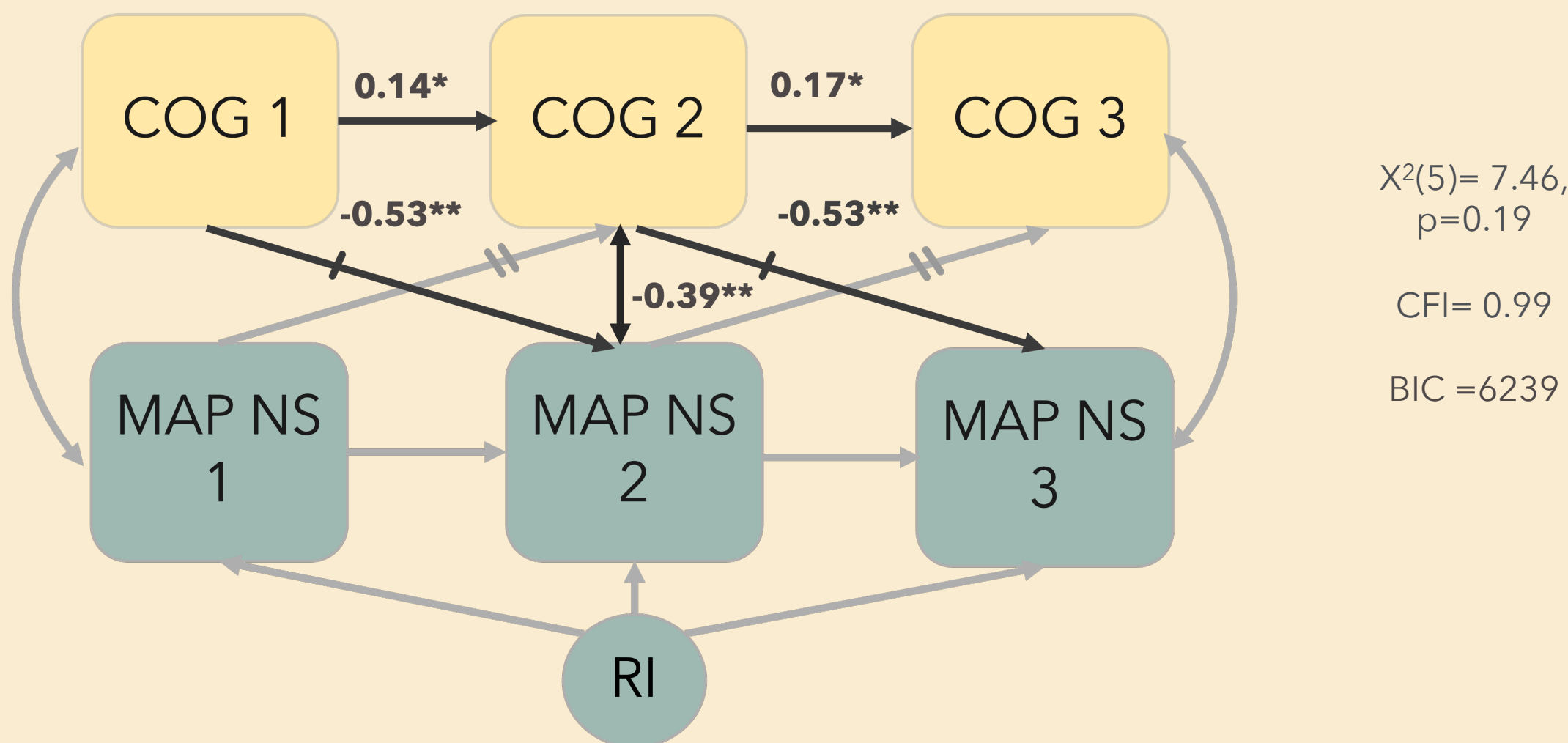


B estimates presented  
\*\* p=0.00 \* p < 0.05

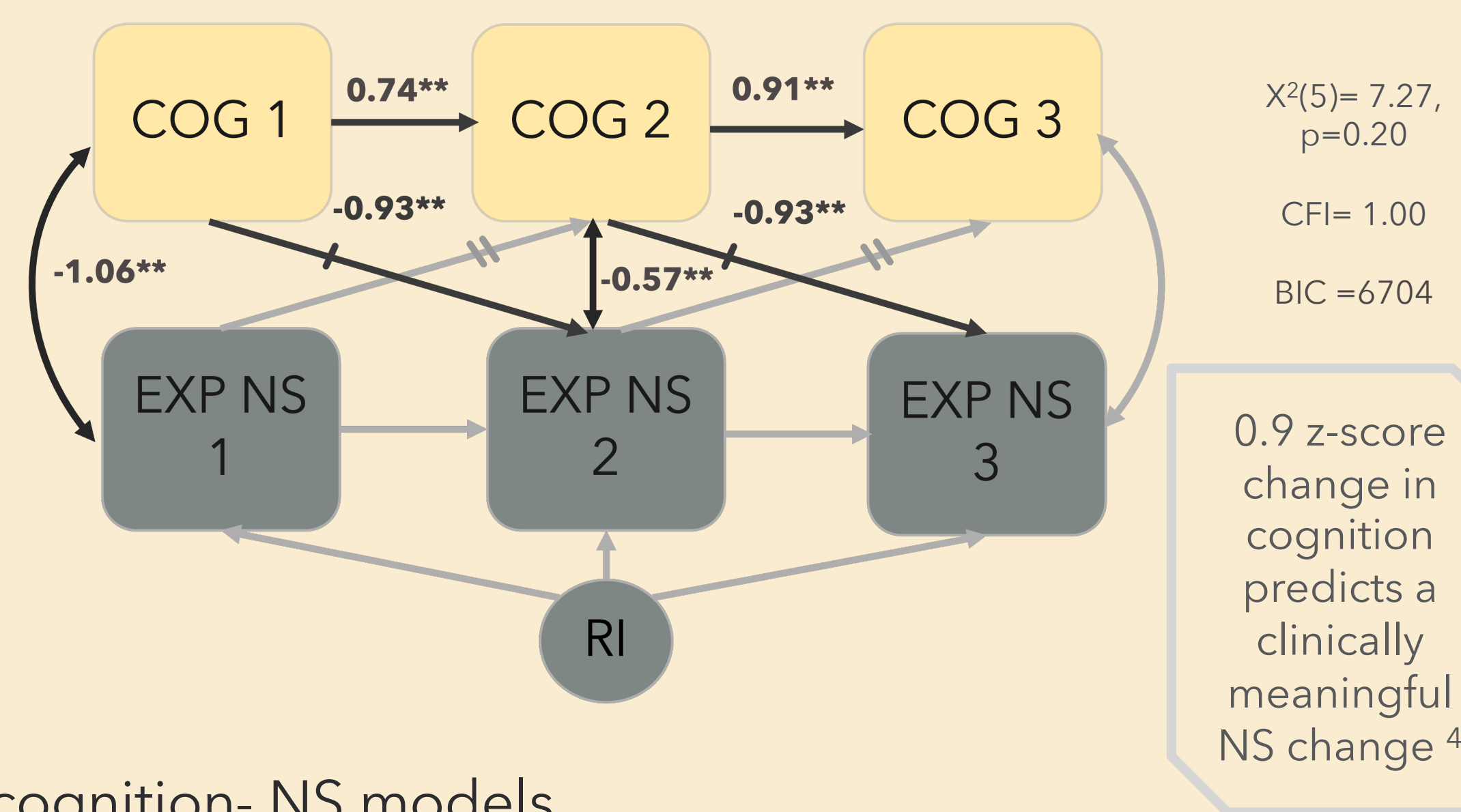
### Global NS



### Motivation and Pleasure NS



### Expressive NS



Across all cognition- NS models

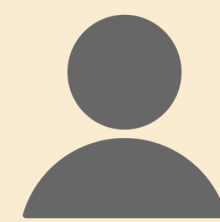
- Cognition significantly predicts NS** in future timepoint
- Cognition significantly predicts future cognition
- NS vary greatly between individuals, NS do not predict future NS

## METHODS

### DATA ACQUISITION



Recovery After Initial Schizophrenia Episode<sup>3</sup>



N= 404  
First episode Psychosis

### STATISTICAL ANALYSIS

#### Random Intercept Cross Lagged Panel Model (in R)

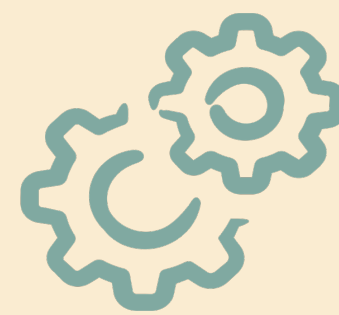
Tests for potential bidirectional relations between variables across time (cross-lags)

Accounts for stable, between person differences in variables

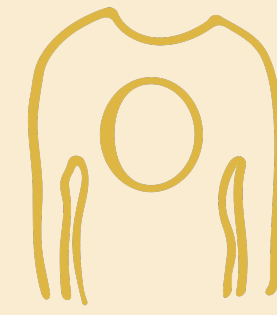
Equality constraints tested to determine whether relationship strengths between variables changed across time

Model with best fit selected (chi-square difference, BIC)

## DISCUSSION



**Cognitive deficits**



**Negative Symptoms**

**Cognitive deficits predict future NS**, but NS do not predict future cognitive functioning.

## CONCLUSION

- Cognitive deficits are implicated and contribute to NS severity<sup>5,6</sup>**
- Targeting cognition in early intervention could have benefits beyond cognitive improvements<sup>7</sup>
- Strengths: cross lagged panel model allows for inferences of causality, robust results across NS dimensions and in sensitivity analyses
- Limitations: unable to account for other factors that might impact relationship
- Future directions: investigations in subgroups within psychosis and in other psychiatric populations

**References** 1. Au-Yeung, C. et al. (2023). The relationship between negative symptoms and MATRICS neurocognitive domains: A meta-analysis and systematic review. *Progress in Neuro-Psychopharmacology and Biological Psychiatry*, 127, 110833. [10.1016/j.pnpb.2023.110833](https://doi.org/10.1016/j.pnpb.2023.110833) 2. Chavez-Baldini et al. (2023). The relationship between cognitive functioning and psychopathology in patients with psychiatric disorders: A transdiagnostic network analysis. *Psychological Medicine*, 53(2), 476. [10.1017/S0033291721001781](https://doi.org/10.1017/S0033291721001781) 3. Kane, J. M. et al., (2016). Comprehensive Versus Usual Community Care for First-Episode Psychosis: 2-Year Outcomes From the NIMH RAISE Early Treatment Program. *American Journal of Psychiatry*, 173(4), 362–372. [10.1176/appi.ajp.2015.15050532](https://doi.org/10.1176/appi.ajp.2015.15050532) 4. Czobor, P (2022). What Is the Minimum Clinically Important Change in Negative Symptoms of Schizophrenia? PANSS Based Post-hoc Analyses of a Phase III Clinical Trial. *Frontiers in Psychiatry*, 13, 816339. [10.3389/fpsy.2022.816339](https://doi.org/10.3389/fpsy.2022.816339) 5. Totzek, J et al. (2023). Longitudinal Inference of Multiscale Markers in Psychosis: From Hippocampal Centrality to Functional Outcome. *Molecular Psychiatry*, 1–10. [10.1038/s41380-024-02549-x](https://doi.org/10.1038/s41380-024-02549-x) 6. Makowski C al. Altered hippocampal centrality and dynamic anatomical covariance of intracortical microstructure in first episode psychosis. *Hippocampus*. 2020;30(10):1058–72. [10.1002/hipo.23215](https://doi.org/10.1002/hipo.23215) 7. Treen Calvo, D et al. (2018). Targeting recovery in first episode psychosis: The importance of neurocognition and premorbid adjustment in a 3-year longitudinal study. *Schizophrenia Research*, 195, 320–326. [10.1016/j.schres.2017.08.032](https://doi.org/10.1016/j.schres.2017.08.032)

