A Longitudinal Three-Wave Network Analysis of COVID-19's Impact on Schizotypal Traits, Depression, & Loneliness

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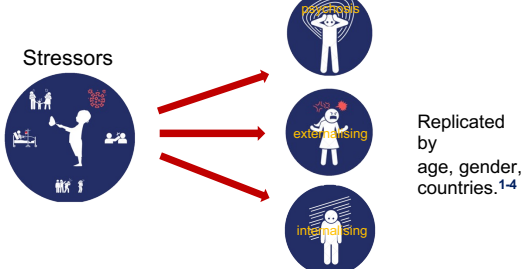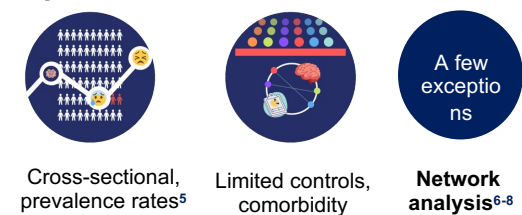
1 Background

The global coronavirus (COVID-19) pandemic can be seen as the perfect opportunity to understand how stress negatively impacts people's mental health and livelihood. Whether higher levels of paranoia/schizotypal traits are associated with poorer mental health during uncertainty.

Existing studies

Stressors
- psychosis
- externalising
- internalising

Replicated by age, gender, countries.[1-4]

Gaps

Cross-sectional, prevalence rates[5] | Limited controls, comorbidity | **Network analysis**[6-8]

A few exceptions

2 Methods

- Adults (18-89 years) self-reported on schizotypy (**F1**: cognitive-perceptual, **F2**: interpersonal, **F3**: disorganised), paranoia (**SMS**), anxiety (**GAD7**), depression (**PHQ9**), aggression (**RPQ**), loneliness (**Lone**), poor sleep (**Sleep**), stress (**Stress**), and demographics e.g., gender (F/M), age (young ≤ 34y, older 35+), country (UK vs. Italy, Greece, USA), lockdown (1 vs. 2).

- **Network analysis** (R; *bootnet*, *qgraph*, *NCT, CLPN*) applied to complete data from three waves (*Ns* = 2276, 1283, 772) and cross-lag data (T1→T2 = 673; T2→T3 = 435).[9]

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This study uses **network analysis (NA)** to understand the pandemic's impact on adult's levels of schizotypal traits, paranoia, and mental health (MH) over 12-months.

Study Questions:

1. Are schizotypal traits and paranoia related to **poorer** mental health? **Yes**

2. Do these networks differ by **gender**, **age**, **country**, and **time** during the COVID-19 pandemic? **No**

3. What **cross-lagged relationships** are observed in these networks? **Let's chat!**

3 Results[10]

Hypothesis 1 & 2 Schizotypal traits and paranoia will be positively associated with poorer mental health across age, gender, and country during lockdown periods.
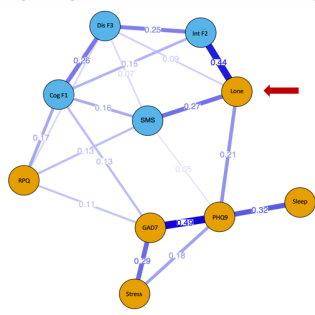
1. Higher levels of paranoia / schizotypy (in blue) were associated with poorer mental health (in yellow), with **loneliness** being the most influential node in the network.
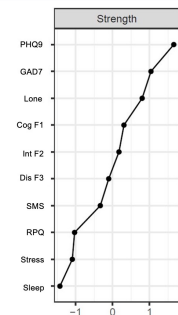
Fig 1. Network relationships across waves (n_1 = 1,599; n_2 = 744; n_3 = 586).

2. No network variance for structure and global strength (S)
- gender (M = .12, p = .45; S =.16, p = .20)
- age (M = .12, p = .16; S = .15, p = .15)
- country (M = .15, p = .17; S = .07, p = .61)
- time (M = .11, p = .15; S = .02, p = .88)

Hypothesis 3 There will be cross-lagged similarities and differences between all variables, particularly due to paranoia, loneliness and stress, coinciding with lockdown restrictions and easing of lockdowns.

*p < .05, **p < .01, ***p < .001

3. **BUT** we found changes from T1→T2 & T2→T3

✓ ∿ **stress**[*] **poorer sleep**[***]: T2 > T1 > T3
✓ ↓ **schizotypy**[**] **aggression**[***] **paranoia**[**]: T1> T2 > T3
✓ = **loneliness**[**] **anxiety**[**]: stable

✓ T1→T2→T3: **schizotypy F2** → loneliness
✓ T1→T2: **covid stress** ← paranoia
✓ T2→T3: **covid stress** ← depression & schizotypy F1

4 Discussion

- Schizotypy (interpersonal F2 & disorganised F3) & paranoia associated with poorer MH **via loneliness** and aggression across three timepoints → interventions for loneliness needed (Fig. 1).

- **Network structure and global strength do not differ** by gender, age, country and lockdown periods → sustained effects for everyone.

- **Decline in symptoms, but more stress & insomnia reported in Time 2** → sustained stress & MH issues is itself problematic, tools to help ease stress and improve sleep needed.

- Covid stress predicted by paranoia (T1), cognitive-perceptual & depression (T2).

○ Single-informant self-report (inflated relationships), convenience sampling (not representative), relationships may have existed prior to study, cross-lag.

✓ Large sample, 12-month follow-up, NA accounts for comorbidity across wide range of MH measures.

5 Why Network Analysis?

Mapping the comorbidity between paranoia / schizotypal traits and mental health symptoms during the pandemic helps us understanding…

How they're related and change.

Who's most vulnerable?

What interventions are needed and when.

UCL-Penn Global COVID Study Timeline

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