

Investigating the relationship between anxiety and working memory performance in adolescents

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Background

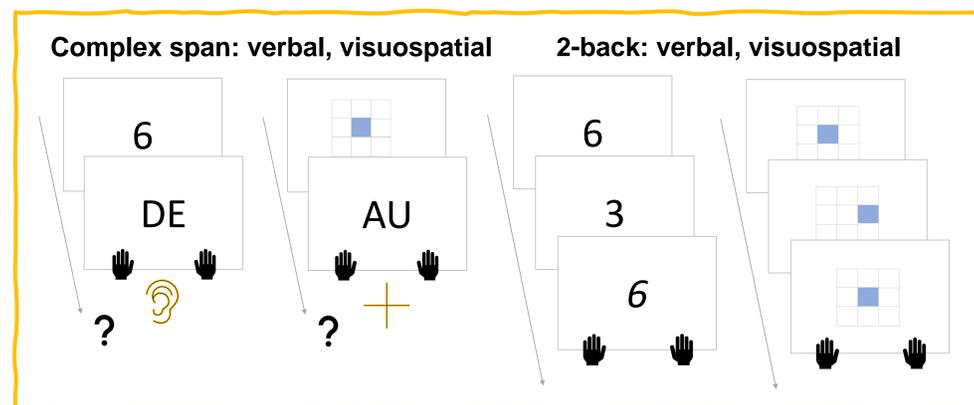
Adolescence is a critical stage for the development of anxiety, yet there is limited understanding of the **cognitive mechanisms** that underpin the onset and maintenance of symptoms. **Working memory** has emerged as a **key explanatory mechanism** in models of anxiety - anxiety is understood to impair task performance by **capturing resource from the limited capacity working memory system** (Eysenck et al., 2007). **Mixed empirical findings** suggest that cognitive interference accounts are oversimplified (see Moran, 2016 for a review), and assumptions regarding parity between different working memory tasks (e.g., complex span, N-back) limit the specificity of findings. Furthermore, there is **limited research** on anxiety-related working memory impairments in adolescents.

Method

Participants aged 16-18 years (Study 1: N=36; Study 2: N=45) completed:

- self-report measures of **executive function** (BRIEF-2; Gioia et al., 2000) and trait and state **anxiety** (STICSA; Ree et al., 2000)
- a battery of carefully matched **verbal and visuospatial working memory tasks**

Task design:



Results

- All tasks demonstrated good reliability and interrelatedness.**
- Self-report measures: increased trait anxiety associated with greater executive function difficulties:** see Figure 1.
- No evidence of pervasive anxiety-related impairment in adolescent working memory performance:** see Figure 2.
Study 2: Trait anxiety & vis 2-back (RTs): $r=.358, p<.001$
Trait anxiety & ver CS (procAcc): $r=.370, p=.041$

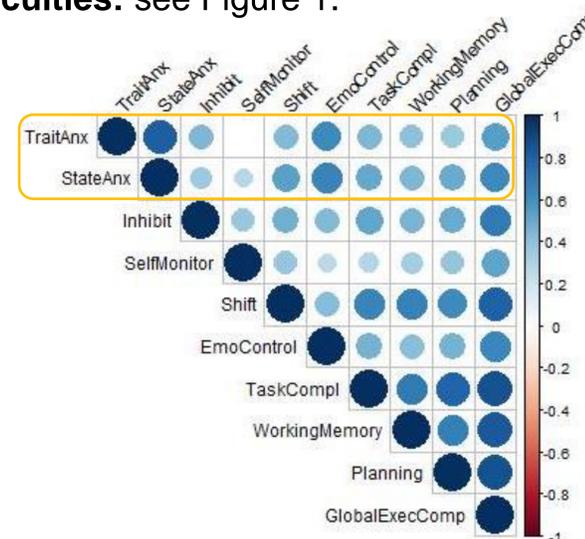


Figure 1. STICSA-BRIEF-2 correlation matrix (Studies 1 & 2)

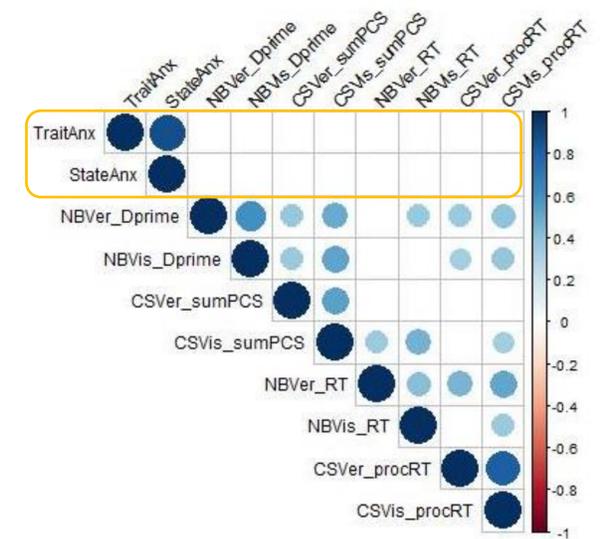


Figure 2. STICSA-behavioural measure correlation matrix (Study 1)

Conclusions

While anxious individuals **reported** greater impairment in executive function, there was no evidence of pervasive anxiety-related working memory impairment (in spite of the tasks demonstrating good reliability and interrelatedness). There is an acknowledged **lack of agreement** between self-report and behavioural measures of cognitive performance (e.g., Soto et al., 2020), however, anxiety-related working memory deficits are **well documented** (see Moran, 2016 for a review). Future research will seek to utilise tasks that are sensitive to anxiety-related differences, and account for the role of **self-identified** versus “**objective**” cognitive difficulties.