

## METAMEMORY IN TURNER SYNDROME: A STUDY COMPARING EPISODIC AND SEMANTIC MEMORY

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### OBJECTIVES

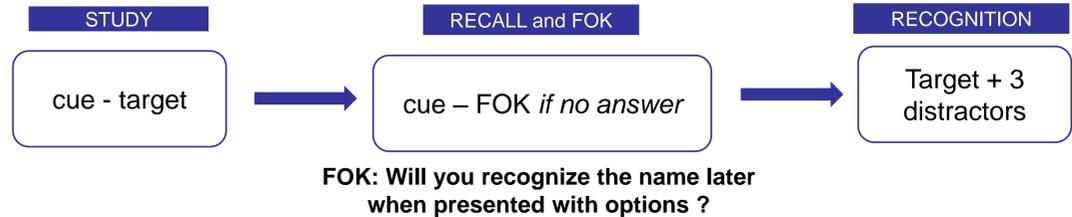
Turner syndrome (TS) is associated with a distinctive cognitive profile including memory impairment for visual material (Lawrence et al., 2003).

The current study focuses on **metamemory**, defined as our knowledge about our memory function (Flavell, 1977) which is, as yet unexplored in TS.

The aim of this preliminary study was thus to determine **what patients with TS know about their memory function** - when their memory is impaired are they aware of that impairment?

### METHODS

To assess **metamemory**, this study focused on the **Feeling-of-knowing paradigm (FOK)**. This paradigm consists of asking participants to predict whether or not they will be able to recognize later an information that they currently *cannot* recall.



#### EPISODIC MEMORY CONDITION

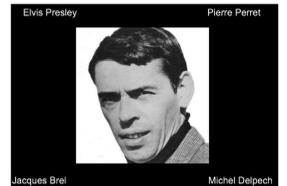
Aim: to assess metamemory knowledge on newly learnt information



30 face-name associations to learn

#### SEMANTIC MEMORY CONDITION

Aim: to assess metamemory knowledge on general knowledge



30 famous names to recall

### PARTICIPANTS

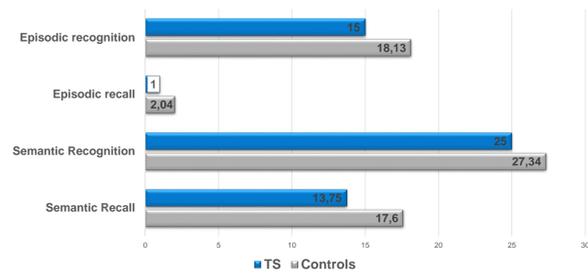
|  | TS group (n=9) | Control group (n=23) |
|--|----------------|----------------------|
| Age                                    | 24.81 (9.74)   | 20.49 (1.95)         |
| <b>IQ (WAIS-IV) Verbal scales</b>      |                |                      |
| Similarities                           | 11.5 (1.51)    | 12.5 (2.86)          |
| Vocabulary                             | 12.75 (4.56)   | 10.91 (3.23)         |
| Arithmetic                             | 9.86 (3.39)    | 9.95 (3.03)          |
| <b>IQ (WAIS-IV) Performance scales</b> |                |                      |
| Block design                           | 7.12 (1.96)    | 9.23 (3.38)          |
| Matrix reasoning                       | 8.62 (2.13)    | 8.69 (2.77)          |
| Autism spectrum quotient (AQ)          | 17.75 (7.55)   | 15.70 (1.34)         |
| Theory of mind                         | 80.32 (14.99)  | 82.19 (7.26)         |

Autism spectrum quotient (AQ, Baron-Cohen et al., 2001), Theory of mind (Faux-pas, Baron-Cohen et al., 1999)

No group differences in Age, IQ, Autism spectrum Quotient, or Theory of mind scores

### RESULTS

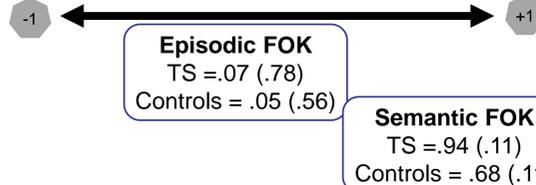
#### Episodic and Semantic memory performance



Group differences only for Recall of new face-name associations

#### MEAN FOK ACCURACY

Gamma correlation between FOK judgment and memory performance for each participant



Episodic FOK at chance level  
Semantic FOK accurate

No Group differences for metamemory accuracy

### CONCLUSIONS

#### These preliminary results show:

Participants with TS recall fewer new face-name associations but a similar number of famous faces, thus showing a dissociation between episodic and semantic memory. Participants with TS gave accurate Feeling-of-knowing judgments, showing proficient metamemory (intact knowledge of memory function).

**Conclusion: Participants with TS have a good insight into their memory performance**

**Limitations:** Floor effect on the episodic recall task, small sample size

**Futur research will** explore whether participants with TS with Theory of Mind deficits have metamemory deficits; plus the links with academic outcomes.

### References

- Flavell, J. H., & Wellman, H. M. (1977). Metamemory. In R. V. Kail & J.W. Hagen (Eds.), *Perspectives on the development of memory and cognition* (pp. 3-33). Hillsdale, NJ: Lawrence Erlbaum.
- Lawrence, K., Campbell, R., Swettenham, J., Terstegge, J., Akers, R., Coleman, M., & Skuse, D. (2003). Interpreting gaze in Turner syndrome: impaired sensitivity to intention and emotion, but preservation of social cueing. *Neuropsychologia*, 41(8), 894-905.

Disclosure: No conflict of interest

