Attentional lapse and inhibition control in adults with Williams syndrome

Joanna Greer¹, Leigh M. Riby¹, Deborah M. Riby², & Colin Hamilton¹

¹Department of Psychology, Northumbria University, UK; ² Department of Psychology, Durham University, UK

Participants

• Adults with WS (n = 20; aged 36–61yrs; mean 42:3 yrs)
• Typically developing adults matched for chronological age (CA; n=20; mean 42:7 yrs)
• Typically developing older adults to consider attentional changes with increasing age (65s; n=20; aged 67-83 years; mean 74:8 yrs)

Procedure

• Participants respond (button press) to a frequent non-target (letter X) whilst withholding their response to an infrequent target (letter Y)

Results

WS group’s hit rate at chance level; numerically greater number of false alarms
CA group’s RT to false alarms significantly faster than WS group

Analysis of reaction time to the non-target immediately before and after an incorrect response to the target (error of commission)

Conclusion

• Overall, adults with WS reported deficits of attention (reduced hit rate to non-target) and inhibition (increase in false alarm rate to target)
• RT to non-target does not reflect speed-accuracy trade-off in WS as observed in typically developing older adults
• RT post error of commission decreases (as found in traumatic brain injury) – further evidence of frontally controlled executive deficits in adults with WS

References


Background

• Williams syndrome (WS) is a rare genetic developmental disorder accompanied with mild-to-moderate learning difficulties
• Executive functioning deficits exist across the developmental spectrum; specifically, behavioural and neuroimaging research highlight a link between inhibitory deficits and the social/behavioural phenotype in WS
• The study employed a Go / No-Go paradigm using the Sustained Attention to Response Task (SART)
• Known to assess attentional lapse and inhibition in typically developing and clinical populations, but has not previously used with this group

Method

Participants

• Adults with WS (n = 20; aged 36–61yrs; mean 42:3 yrs)
• Typically developing adults matched for chronological age (CA; n=20; mean 42:7 yrs)
• Typically developing older adults to consider attentional changes with increasing age (65s; n=20; aged 67-83 years; mean 74:8 yrs)

Procedure

• Participants respond (button press) to a frequent non-target (letter X) whilst withholding their response to an infrequent target (letter Y)