**Title**: Exploring the feasibility of a novel executive functioning battery remotely delivered to children with an intellectual disability.

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**Introduction**: There are 1.5 million people with an intellectual disability (ID) in the UK and over half of these present with ID associated with either a rare genetic syndrome or a co-occurring condition such as autism. Evidence suggests cognitive differences may underpin clinically significant behaviors for children and adults within this population (for example self-injurious behavior1 and differences in adaptive functioning2), however thus far evidence is based solely on informant report measures. One key barrier to the advancement of evidence is the lack of developmentally appropriate, robust and feasible direct cognitive assessments for children and adults with ID. Where measures of cognition have been developed for populations with ID they are often limited in their ability to capture performance across the full range of functioning, especially in those with lower mental age3. As such, there are few reliable and valid tools available to detect and track cognitive change in people with ID, particularly those with moderate to severe ID. The current study therefore seeks to advance this position, detailing feasibility data from a robust protocol of direct cognitive assessments designed to be delivered remotely by caregivers with real-time support from a research team. The feasibility of cognitive tasks, as well as their ability to capture change over time when repeated is explored within the current study.

**Method**: A novel and developmentally appropriate executive function (EF) battery was developed as part of a battery of assessments administered remotely to a sample of 126 children with autism and a co-occurring intellectual disability (mean age = 9.95, range 4-15, 28 female). Tasks were adapted from a simplified battery devised for young typically developing children4, with parents and caregivers delivering EF tasks in their own home to their child while being guided in real time through Bluetooth headphones by the research team. Tasks targeted three core areas of executive functioning; inhibition, cognitive flexibly and working memory.

**Results**: Mean prohibition, working memory efficiency and conflict composite scores sat within 80% of the possible range of scores, suggesting tasks were developmentally appropriate for children with ID. All composite scores ranged from very low to very high with pass and fail rates indicating variable performance across the sample. These inter-individual differences suggest the tasks were developmentally sensitive for children with ID. Data loss across the sample was minimal, with reasons for data loss in line with wider expectations of administering tasks to children within the age range of the current study (e.g. caregiver or child discontinuing a task).

**Discussion:** The current study highlights a novel battery of direct, caregiver administered executive functioning tasks is both feasible and developmentally appropriate for children with a ID. The quality of data suggests the battery of assessments have utility across research, education and medical settings to provide meaningful information about individual abilities for people with an intellectual disability that could be used to directly support interventions improving outcomes for individuals. These findings will allow for the extension of our understanding of associations between cognitive abilities and clinically significant behaviours for people with ID. Follow up data are currently being collected as part of the REFINE (Research into Executive Functions for Individuals With Additional Needs) study, to establish the validity of these tasks over an extended time period and their utility in capturing meaningful individual change.

**References:**

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