CROSS-SECTIONAL STUDY OF EXECUTIVE FUNCTIONS ASSESSMENT CHECKLIST FOR CHILDREN WITH DEVELOPMENTAL DISABILITIES (EFAC-CDD)

Dr. Yash Pal Singh
Professor in Education
M.J.P. Rohilkhand University, Bareilly (U.P.)
Email : yashpalsingh23@gmail.com

Vikas Ray
Research Scholar
Department of Education
M.J.P. Rohilkhand University, Bareilly (U.P.)
Email : rehabprofvikas@rediffmail.com

ABSTRACT

Background : Executive functions (EF) are a set of high order mental abilities that regulate cognition, emotions and behaviour. A checklist was developed to assess executive functioning in children with developmental disabilities called the EFAC-CDD by the researchers, which is a 256-item checklist in English.

Aim : This research is based on conduction of a cross-sectional study to validate the EFAC-CDD.

Methodology : The study will compare and analyze a sample of children with developmental disabilities (N=20) and their peers without it (N=20) between the ages of 8 to 15 years of age on a broad range of EF areas using the EFAC-CDD.

Results : There is a highly significant difference (p=9.18) in executive functioning between children with developmental disabilities (M=53.35) and their peers without it (M=215.2). While the performance of typical children remains to be above average in all domains, the performance of children with developmental disabilities is seen to be below average across all domains of executive functions.

Conclusion : The findings of this research establish a baseline for EFAC-CDD and further validates the tool to be a valid checklist for testing executive functioning in children with developmental disabilities.

Key Words : Executive Functions, Assessment, Development, Disabilities, Children.

Introduction

Executive functions are a set of cognitive skills that are used to learn, work and manage everyday life, which, when it comes to children with developmental disabilities, are observed to be dysfunctional. Executive functioning involves a set of top-down mental skills which helps in memory, thinking, and control. Some people describe executive functioning as "the management system of the brain" as they help set goals, plans and get and things done. According to experts, all the skills can majorly be classified under three important domains of executive functioning called inhibitory control, working memory, and flexible thinking.

Some warning signs that a child may have problems with executive function include problems with:

- Planning projects
- Estimating how much time a project will take to complete
- Telling stories (verbally or in writing)
- Memorizing
- Starting activities or tasks
- Shifting plans when situations change
- Focusing only on one task
- Shutting down when parents or peers don't act as expected

Professionals and scholars alike have been interested in early identification and interventions for EF deficits for many years, because impairments in EF are seen as characteristic for individuals with Autism Spectrum Disorder (ASD), highlighting that individuals with Intellectual Disability, Autism Spectrum Disorder, Attention-Deficit/Hyperactivity Disorder commonly experience executive functioning deficits (Benallie et al., 2021; Robinson et al., 2009; Panerai et al., 2014).

Poor EF is a significant clinical health issue not only due to its prevalence in neurological injury and disorder, but also due to the influence of poor EF on academic outcomes such as memory problems, educational failure (Barkley, 2012) and learning disabilities (Jerman, Reynolds, & Swanson, 2012). EF delays, as well as disorders characterized by poor EF, are commonly associated with academic underachievement, learning deficits, and related problems with learning and memory (Barkley, 2012).

Many researchers have drawn a parallel between a deficiency in executive functions and developmental disabilities, i.e., autism spectrum disorder, learning disability, intellectual disability, attention deficit hyperactivity disorder, downs syndrome, stating that a deficiency of executive functioning in individuals with developmental disabilities can be targeted for intervention and treatment plans.

Executive Functioning across different populations

Autism Spectrum Disorder

The executive functioning abilities in individuals with Autism Spectrum Disorder (ASD) have been extensively studied in order to identify the specific processes that are either functioning well or impaired. However, the results have been mixed, with some aspects of executive functioning showing convincing evidence while others remain inconsistent. This inconsistency has raised doubts about whether executive dysfunctions can be considered as a diagnostic marker for autism. In a review conducted by Hill (2006), various studies were categorized into different executive domains, including planning, mental flexibility, inhibition, generativity, and self-monitoring. It has been observed that individuals with ASD, including children, adolescents, and adults with normal IQ, tend to exhibit significant impairments in planning tasks compared to controls who are matched for age and/or IQ. These control groups consist of individuals with

typical development as well as those with developmental disorders such as dyslexia, Tourette syndrome, and attention deficit hyperactivity disorder (ADHD).

Regarding mental flexibility, individuals with ASD often display increased perseverations compared to typically developing children and children with other neurodevelopmental disorders. These perseverations are commonly attributed to difficulties in shifting attention, and this deficit tends to persist over time. A study by Christ et al. (2020) suggests that certain aspects of inhibitory control may be impaired in children with ASD, and there could be a relationship between response inhibition and sustained attention. On the other hand, studies examining working memory (WM) have produced inconsistent findings. Some studies have detected deficits in WM in individuals with ASD, whereas others have not. Consequently, it remains unclear whether working memory is one of the major executive functions that are severely impaired in autism, according to the findings of Ozonoff and Strayer (2022).

Intellectual Disability

Studies have shown that cognitive functioning in individuals with intellectual disabilities is not solely defined by a low overall level of intelligence. There is also a distinct relationship between cognitive abilities and impairments in specific cognitive functions. This is particularly evident in deficits related to executive functioning (EF) among individuals with intellectual disabilities.

In a meta-analysis conducted by Spaniol and Danielson, it was found that individuals with intellectual disabilities exhibited significantly lower EF compared to control groups matched for mental age. Additionally, the research conducted by Schuchhardt and colleagues indicates that deficits in EF are already present in children with borderline intellectual functioning, which refers to individuals with an IQ above 70 but below 85.

These findings highlight the crucial role of EF in understanding the cognitive functions associated with lower levels of cognitive functioning seen in individuals with (borderline) intellectual disabilities. Therefore, the objective of the current study was to examine whether the significance of EF for intellectual disabilities, including borderline intellectual functioning, is manifested in a distinct structural relationship between intelligence and EF in individuals with a full-scale intelligence quotient equal to or below 85.

Typical children

Executive functions (EFs) generally improve from preschool to early adulthood, with research suggesting a differential development of EFs during childhood and adolescence. According to Diamond, cognitive flexibility only develops in later childhood, while Huizinga and colleagues proposed a two-factor model including cognitive flexibility and working memory, but no inhibition factor, in children aged eight years and older, indicating structural stability from that age onwards.

Recent studies investigating the developmental trajectory of EFs indicate that executive components develop throughout childhood, adolescence, and into adulthood. This development is primarily associated with the maturation of frontal brain regions and their connections with subcortical regions (Paus et al., 2001; Tsujimoto, 2008). Some researchers suggest that the development of EFs begins around the first year of life, with basic skills such as selective attention, inhibition, and working memory emerging in the first three years. Between the ages of three and five, children become capable of formulating and using more complex rules to regulate their behavior (Garcia-Molina et al., 2009). From this age onwards, they are capable of engaging in more complex behaviors, decision-making, and planning, which require additional executive skills (Bodrova & Leong, 2007; Dawson & Guere, 2010; Dias & Seabra, 2013). Therefore, EF can be improved and enhanced at any age. However, when designing interventions or tasks to stimulate EF, it is essential to consider the cognitive and social changes that occur throughout child development, including the appropriate age range for such interventions and the construction of suitable tasks and programs.

Hence, the present study aims to compare a sample of typical school going population which has children without any developmental disabilities with a sample of children with developmental disabilities with the help of the checklist, EFAC-CDD, so as to establish a baseline for the executive functioning scores as well further the validity of the developed tool.

Methodology

This is a cross-sectional study design in which two different population samples were studied at the same time in order to compare their results on an executive functioning checklist. This a descriptive paper which helps us analyse the differences in prevalence of various areas or domains of executive functioning between a typical children sample in comparison with a sample of children with developmental disabilities.

Sample details

The sampling design was selective and purposive as for the purpose of this study two groups of children were chosen.

Group 1: Typical school going children between the ages of 8 and 15 (n=20)

The children in this group were chosen from the families and relatives of the second group i.e. siblings or cousins of children with developmental disabilities, consisting of children without reported developmental disabilities.

Group 2: Children with developmental disabilities between the ages of 8 and 15 (n=20)

The children in this group were chosen from the referrals made to a disability and therapy centre in New Delhi i.e., Learning Ladder Therapy Centre. This includes children with Intellectual Disability (n=10) and children with Autism Spectrum Disorder (n=10).

Test details

The Executive Functions Assessment Checklist for Children with Developmental Disabilities (EFAC-CDD)

The executive Functions assessment checklist for children with developmental disabilities (EFAC-CDD) was developed to assess the executive functioning level of children with developmental disabilities across different domains of executive functions.

The dimensions of the checklist that are assessed by the EFAC-CDD are as follows :

- **Working Memory :** It involves processes holding/retaining small amounts of or temporary information that helps us is accomplishing tasks. Doing mathematical operations, translating instructions, and working with language, all require the use of working memory.
- **Impulse Control :** It involves the ability to control one's

attention, behavior, thoughts, and/or emotions to override a strong internal predisposition (an impulse) and instead do what's more appropriate or needed. This is commonly known as "thinking before acting".

- **Planning :** It involves the ability to create a plan or a roadmap to reach a goal. Completing tasks requires the ability to have a mental plan in place so that things get done.
- **Mental Flexibility :** It involves the ability to change perspectives and be flexible enough to adapt according to the situation or circumstance demands.
- **Attention :** It helps us to focus on tasks, ignore distractions, and resist impulsive behavior.
- **Action Monitoring :** It is the ability to monitor one's own behaviour involving controlling impulses and emotions, staying on task, keeping belongings organized.
- **Problem Solving :** It involves the capacity to identify, describe a problem and generate ideas to overcome or fix it.
- **Emotional Control :** It involves how we manage and respond to emotional experiences in the environment, particularly stressful ones.
- **Time Management :** It is the ability to plan and organize one's time in an efficient manner which helps in achieving goals and maximizing productivity.

The EFAC-CDD is a checklist developed to assess the level of executive functioning among children with developmental disabilities across 9 domains i.e., Working Memory with 7 sub-domains; Impulse Control with 4 sub-domains; Planning Skills with 4 sub-domains; Mental Flexibility with 3 sub-domains; Attention with 5 sub-domains; Action Monitoring with 3 sub-domains; Problem Solving with 4 sub-domains; Emotional Control with 2 sub-domains; and Time Management with 1 sub-domain. Each sub-domain consists of 8 skills that will be assessed, hereby resulting in a total of 256 items (Ray & Singh, 2023).

A child will be scored on each skill item on a score of 0 – 1. The child will be given 3 attempts to perform the given skill, which is termed as a trial, and each successful attempt will receive a score of 1, and every unsuccessful attempt will receive a score of 0 subsequently. Further scoring process is described in the tool construction study wherein the domain total score, domain percentage, as well as the overall total executive functioning score and percentage of the participant is calculated to determine their level of functionality (Ray & Singh, 2023).

ANALYSIS AND RESULTS

The sample of this study was divided into two groups, i.e. the sample of children without developmental disabilities (Group 1), and the sample of children with developmental disabilities, specifically Intellectual Disability (ID) and Autism Spectrum Disorder (ASD) (Group 2). The means for the whole sample studied are presented, by group in Table 1.

Table 2 through Table 10 present the results of descriptive statistical T-Test Analysis between the 2 groups of this study on the nine domains of executive functioning tested, i.e., Working Memory, Impulse Control, Planning Skills, Mental Flexibility, Attention, Action Monitoring, Problem Solving, Emotional Control and Time Management respectively. Table 11 presents the results of descriptive statistical T-Test Analysis on total executive functioning between the two groups.

Table 1: Sample Characteristics

Group 1			Group 2			
	Number	Mean Age			Number	Mean Age
Males	5	10.6	ID	Males	5	11.8
Females	15	12.35		Females	5	13.3
Total	20	12		Total	10	12.67
			ASD	Males	6	11.64
				Females	4	10.75
				Total	10	11
			Total		20	11.85

Group 1 : children without developmental disabilities
Group 2: children with developmental disabilities
(ID=Intellectual Disability; ASD=Autism Spectrum Disorder)

Table 2: T-Test for working memory variable

	Group 1	*Group 2*
Mean	46.05	14.2
Variance	14.68158	35.95789
Observations	20	20
Pooled Variance	25.31974	
Hypothesized Mean Difference	0	
df	38	
t Stat	20.01612	
P(T<=t) one-tail	4.39E-22	
t Critical one-tail	1.685954	
P(T<=t) two-tail	8.78E-22	
t Critical two-tail	2.024394	

he working memory among the typical school-going children has a higher mean (46.05) as compared to children with developmental disabilities (14.2) with a significant difference (p=8.78).

Table 3: T-Test for Impulse Control variable

	Group 1	*Group 2*
Mean	20.5	6.55
Variance	3.631579	6.681579
Observations	20	20
Pooled Variance	5.156579	
Hypothesized Mean Difference	0	
df	38	
t Stat	19.42645	
P(T<=t) one-tail	1.24E-21	
t Critical one-tail	1.685954	
P(T<=t) two-tail	2.48E-21	
t Critical two-tail	2.024394	

The impulse control among the typical school-going children has a higher mean (20.5) as compared to children with

developmental disabilities (6.55) with a significant difference (p=2.48).

Table 4: T-Test for Planning Skills variable

	Group 1	*Group 2*
Mean	25.3	5.8
Variance	16.43158	9.326316
Observations	20	20
Pooled Variance	12.87895	
Hypothesized Mean Difference	0	
df	38	
t Stat	17.18282	
P(T<=t) one-tail	8.25E-20	
t Critical one-tail	1.685954	
P(T<=t) two-tail	1.65E-19	
t Critical two-tail	2.024394	

The planning skills among the typical school-going children has a higher mean (25.3) as compared to children with developmental disabilities (5.8) with a significant difference (p=1.65).

Table 5: T-Test for Mental Flexibility variable

	Group 1	*Group 2*
Mean	21.45	5.7
Variance	9.102632	9.589474
Observations	20	20
Pooled Variance	9.346053	
Hypothesized Mean Difference	0	
df	38	
t Stat	16.2917	
P(T<=t) one-tail	4.93E-19	
t Critical one-tail	1.685954	
P(T<=t) two-tail	9.86E-19	
t Critical two-tail	2.024394	

The mental flexibility among the typical school-going children has a higher mean (21.45) as compared to children with developmental disabilities (5.7) with a significant difference (p=9.86).

Table 6: T-Test for Attention variable

	Group 1	*Group 2*
Mean	33.65	8.05
Variance	9.502632	25.20789
Observations	20	20
Pooled Variance	17.35526	
Hypothesized Mean Difference	0	
df	38	
t Stat	19.43231	
P(T<=t) one-tail	1.23E-21	
t Critical one-tail	1.685954	
P(T<=t) two-tail	2.45E-21	
t Critical two-tail	2.024394	

The attention among the typical school-going children has a higher mean (33.65) as compared to children with developmental disabilities (8.05) with a significant difference (p=2.45).

Table 7: T-Test for Action Monitoring variable

	Group 1	*Group 2*
Mean	21.45	3.75
Variance	4.576316	12.82895
Observations	20	20
Pooled Variance	8.702632	
Hypothesized Mean Difference	0	
df	38	
t Stat	18.97352	
P(T<=t) one-tail	2.8E-21	
t Critical one-tail	1.685954	
P(T<=t) two-tail	5.6E-21	
t Critical two-tail	2.024394	

The action monitoring among the typical school-going children has a higher mean (21.45) as compared to children with developmental disabilities (3.75) with a significant difference (p=5.6).

Table 8: T-Test for Problem Solving variable

	Group 1	*Group 2*
Mean	24.4	5.75
Variance	17.72632	16.30263
Observations	20	20
Pooled Variance	17.01447	
Hypothesized Mean Difference	0	
df	38	
t Stat	14.29781	
P(T<=t) one-tail	3.56E-17	
t Critical one-tail	1.685954	
P(T<=t) two-tail	7.13E-17	
t Critical two-tail	2.024394	

The problem solving among the typical school-going children has a higher mean (24.4) as compared to children with developmental disabilities (5.75) with a significant difference (p=7.13).

Table 9: T-Test for Emotional Control variable

	Group 1	*Group 2*
Mean	15.55	1.9
Variance	0.892105	3.463158
Observations	20	20
Pooled Variance	2.177632	
Hypothesized Mean Difference	0	
df	38	
t Stat	29.25098	

The emotional control among the typical school-going children has a higher mean (15.55) as compared to children with developmental disabilities (1.9) with a significant difference (p=1.15).

Table 10: T-Test for Time Management variable

Time Management	*Group 1*	*Group 2*
Mean	6.85	1.65
Variance	1.081579	3.186842
Observations	20	20
Pooled Variance	2.134211	
Hypothesized Mean Difference	0	
df	38	
t Stat	11.25602	
P(T<=t) one-tail	5.76E-14	
t Critical one-tail	1.685954	
P(T<=t) two-tail	1.15E-13	
t Critical two-tail	2.024394	

The time management among the typical school-going children has a higher mean (6.85) as compared to children with developmental disabilities (1.65) with a significant difference (p=1.15).

Table 11: T-Test for Total Executive Functioning variable

	Group 1	*Group 2*
Mean	215.2	53.35
Variance	190.0632	696.3447
Observations	20	20
Pooled Variance	443.2039	
Hypothesized Mean Difference	0	
df	38	
t Stat	24.31145	
P(T<=t) one-tail	4.59E-25	
t Critical one-tail	1.685954	
P(T<=t) two-tail	9.18E-25	
t Critical two-tail	2.024394	

The total executive functioning among the typical school-going children has a higher mean (215.2) as compared to children with developmental disabilities (53.35) with a significant difference (p=9.18).

DISCUSSION

The aim of this study was to compare the results of executive functioning between a group with developmental disabilities and a group without developmental disabilities with the help of the test Executive Functioning Assessment Checklist for Children with Developmental Disabilities (EFAC-CDD) developed by Ray & Singh (2023). The study attempts to present a cross-sectional analysis to establish a baseline for the scoring of this test and further, validate the testing of this checklist.

Through the cross-sectional study, it was established that there is a highly significant difference (p=9.18) in executive functioning between children with developmental disabilities (M=53.35) and their peers without it (M=215.2).

Since executive functioning is a very broad concept, the specific domains that were tested with the use of EFAC-CDD help in furthering our understanding. The resulting performance of both the groups when analysed and compared led to the following inferences.

In Group 1 (typical children aged 8-15 years), the highest average score in comparison to all other domains was M=46.05 in Working Memory. This was followed by the score obtained in the domain of attention M=33.65; the planning skills domain yielded a score of M=25.3; the problem solving domain yielded a score of M=24.4; the domains action monitoring and mental flexibility both obtained a score of M=21.45; the score obtained in impulse control was M=20.5; the emotional control domain yielded a score of M=15.55; and lastly, the score obtained for time management domain was M=6.85, which is the lowest average functionality score in comparison to other domains.

In Group 2 (children with developmental disabilities aged 8-15 years), the highest average score in comparison to all other domains was M=14.02 in Working Memory. This was followed by the score obtained in the domain of attention M=8.05; the domain of impulse control had a score of M=6.55; the planning skills domain yielded a score of M=5.8; the problem solving domain yielded a score of M=5.75; the domain of mental flexibility obtained a score of M=5.7; the score obtained in action monitoring was M=3.75; the emotional control domain yielded a score of M=1.9; and lastly, the score obtained for time management domain was M=1.65, which is the lowest average functionality score in comparison to other domains.

Upon comparing the scores of the domains of executive functioning between children with developmental disabilities (group 2) and children without them (group 1), the most significant difference was found in the domain of mental flexibility (p=9.86), followed by working memory (p=8.78), then problem solving (p=7.13), then action monitoring (p=5.6), followed by impulse control (p=2.48), then attention (p=2.45), then planning skills (p=1.65), and lastly emotional control (p=1.15) and time management (p=1.15).

Hence, typical children as well as children with developmental disabilities in the age group of 8 to 15 years are observed to have the highest functionality in Working Memory, and the lowest functionality in time management. However, it is important to note that there is a difference in even the lowest functionality scores of emotional control and time management between the groups. While the performance of typical children remains to be above average in all domains, the performance of children with developmental disabilities is seen to be below average across all domains of executive functions.

The results and analyses help us understand the average scoring for this age group across various domains of executive function and establishes a baseline. It further validates the EFAC-CDD to be a valid checklist for testing executive functioning in children

with developmental disabilities.

CONCLUSION

The current study aimed to compare the results of an executive functioning checklist across two population samples and to validate its testing among children with developmental disabilities in India. The EFAC-CDD was developed and a pilot study was conducted (Ray & Singh, 2023) in which the tool development is recorded along with a study on children with developmental disabilities between the age of eight and fifteen year; post which arose a need to compare the sample results with typical children to validate the test for the population it has been developed for. It was found that there is a significant difference in executive functioning between children with developmental disabilities and their peers without it with the use of EFAC-CDD, a difference which is supported by other researches (Benallie et al., 2021; Robinson et al., 2009; Panerai et al., 2014). Hence, this tool is a valid checklist for assessing executive functioning among children with developmental disabilities.

For future studies, the pre and post analysis on a case basis with a intervention plan will be tested using this checklist to help establish an effective assessment and intervention tool in working with children with developmental disabilities, with a larger sample size. Secondly, a reliability study will also be undertaken for standardization of the checklist.

References

- Barkley, R. A. (2012). Executive functions: What they are, how they work, and why they evolved. Guilford Press.
- Benallie, K. J., McClain, M. B., Bakner, K. E., Roanhorse, T., & Ha, J. (2021). Executive functioning in children with ASD+ ADHD and ASD+ ID: A systematic review. Research in Autism Spectrum Disorders, 86, 101807.
- Bertelli, M. O., Cooper, S. A., & Salvador-Carulla, L. (2018). Intelligence and specific cognitive functions in intellectual disability: implications for assessment and classification. Current Opinion in Psychiatry, 31(2), 88-95.
- Bodrova, E., & Leong, D. J. (2007). Tools of the mind: The Vygotskian approach to early childhood education (2nd Ed). Upper Saddle River, NJ: Prentice-Hall.
- Cardoso, C. D. O., Dias, N., Senger, J., Colling, A. P. C., Seabra, A. G., & Fonseca, R. P. (2018). Neuropsychological stimulation of executive functions in children with typical development: A systematic review. Applied Neuropsycho-logy: Child, 7(1), 61-81.
- Christ, S. E., Holt, D. D., White, D. A., & Green, L. (2007). Inhibitory control in children with autism spectrum disorder. Journal of autism and developmental disorders, 37, 1155-1165.
- Dawson, P., & Guere, R. (2010). Executive skills in children and adolescents: A practical guide to assessment and intervention. New York, NY: Guilford Press.
- Dias, N. M., & Seabra, A. G. (2013). Programa de Intervenção sobre a Autorregulação e Funções Executivas – PIAFEX [The intervention program for self-regulation and executive functions]. São Paulo, Brazil: Memnon.
- Garcia-Molina, A., Enseñat-Catallops, A., Tirapu-Ustárroz, J., & Roig-Rovira, T. (2009). Maduración de lacortezaprefrontaly desarrollo de las funciones ejecutivas durante losprimeros cinco años de vida [Methods in neuropsychological rehabilitation]. Revista de Neurologia, 48(8), 435–440.
- Hill, E. L. (2004). Evaluating the theory of executive dysfunction in autism. Developmental review, 24(2), 189-233.
- Jerman, O., Reynolds, C., & Swanson, H. L. (2012). Does growth in working memory span or executive processes predict growth in reading and math in children with reading disabilities?. Learning Disability Quarterly, 35(3), 144-157.
- MacLean, H., McKenzie, K., Kidd, G., Murray, A. L., & Schwannauer, M. (2011). Measurement invariance in the assessment of people with an intellectual disability. Research in developmental disabilities, 32(3), 1081-1085.
- Paus, T., Collins, D. L., Evans, A. C., Leonard, G., Pike, B., & Zijdenbos, A. (2001). Maturation of white matter in the human brain: A review of magnetic resonance studies. Brain Research Bulletin, 54, 255–266.
- Panerai, S., Tasca, D., Ferri, R., Genitori D'Arrigo, V., & Elia, M. (2014). Executive functions and adaptive behaviour in autism spectrum disorders with and without intellectual disability. Psychiatry journal, 2014.
- Ray, V., & Singh, Y.P. (2023). A checklist for evaluating executive functioning in children with developmental disabilities. Inclusive Collaborative Practices in Inclusive Settings: Practitioners' Perception, 143–165.
- Reynolds, M. R., Ingram, P. B., Seeley, J. S., & Newby, K. D. (2013). Investigating the structure and invariance of the Wechsler Adult Intelligence Scales, in a sample of adults with intellectual disabilities. Research in Developmental Disabilities, 34(10), 3235-3245.
- Robinson, S., Goddard, L., Dritschel, B., Wisley, M., & Howlin, P. (2009). Executive functions in children with autism spectrum disorders. Brain and cognition, 71(3), 362-368.
- Russell, J., Jarrold, C., & Hood, B. (1999). Two intact executive capacities in children with autism: Implications for the core executive dysfunctions in the disorder. Journal of Autism and Developmental Disorders, 29, 103-112.
- Ozonoff, S., & McEvoy, R. E. (1994). A longitudinal study of executive function and theory of mind development in autism. Development and psychopathology, 6(3), 415-431.
- Schuchardt, K., Gebhardt, M., & Mäehler, C. (2010). Working memory functions in children with different degrees of intellectual disability. Journal of intellectual disability research, 54(4), 346-353.
- Spaniol, M., & Danielsson, H. (2022). A meta-analysis of the executive function components inhibition, shifting, and attention in intellectual disabilities. Journal of Intellectual Disability Research, 66(1-2), 9-31.
- Tsujimoto, S. (2008). The prefrontal cortex: Functional neural development during early childhood. The Neuroscientist, 14 (4), 344–358