

Assessment of selective attention in children with mild Down syndrome and the difficulties they face

تقييم الانتباه الانتقائي عند أطفال متلازمة داون درجة خفيفة والصعوبات التي يواجهونها

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Abstract:

This study examines the nature of selective attention in children diagnosed with mild Down syndrome, as this capacity is a fundamental cognitive process supporting adaptive environmental functioning. The research employed a field-based methodology involving a sample of four children with mild Down syndrome, aged 8 to 14 years, with mental ages between 66 and 75 years, corresponding to a mild level of intellectual disability.

A battery of assessments was utilized to measure the children's ability to direct and sustain attention toward specific stimuli while inhibiting distractors, in alignment with their cognitive and developmental levels. The findings reveal notable impairments in selective attention, underscoring an urgent need for specialized interventions aimed at developing and strengthening these essential cognitive capacities in children with Down syndrome.

Keywords: Attention, Selective Attention, Down Syndrome

ملخص:

تسعى هذه الدراسة إلى الكشف عن طبيعة الانتباه الانتقائي لدى أطفال متلازمة داون من الدرجة الخفيفة، باعتباره من أهم العمليات المعرفية التي تلعب دورا محوريا في التكيف مع المحيط. وقد اعتمدنا في هذا البحث على دراسة ميدانية لعينة مكونة من أربعة أطفال يعانون من متلازمة داون درجة خفيفة، تراوح عمرهم الزمني ما بين 8 إلى 14 سنة وعمرهم العقلي ما بين 66 إلى 75 سنة أي تخلف ذهني درجة خفيفة. تم استخدام أدوات وتقنيات تهدف إلى قياس قدرة هؤلاء الأطفال على توجيه وتركيز انتباههم نحو مثير معين وتجاهل المشتتات، بما يتلاءم مع مستواهم العقلي والمعرفي. وقد أظهرت النتائج وجود اضطرابات وصعوبات على مستوى الانتباه الانتقائي، ما يعكس الحاجة إلى تدخلات متخصصة وتنمية هذه وظيفة الانتباه الانتقائي لدى أطفال متلازمة داون.

الكلمات المفتاحية: الانتباه، الانتباه الانتقائي، متلازمة داون.

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1. Introduction:

Since ancient times, people have recognized a distinct group of children who differ slightly from typically developing peers. These are children with Down syndrome, who were historically — and erroneously — referred to as "Mongolian children." They were widely regarded as mentally disordered individuals, and numerous unfounded beliefs surrounded their nature. As a result, they suffered considerably from neglect and illness,

which frequently led to premature death among them. In the present day, however, with the advancement of knowledge and scientific understanding, awareness of this population and their capabilities has grown substantially. Civilized societies have since worked to remove barriers for this group, with the aim of improving the quality of their lives and reducing unnecessary hardship (Shaikha Salem Al-Areed, p. 261).

Down syndrome is considered a form of intellectual disability; it is a condition rather than a disease or disorder. Although it fundamentally arises from a chromosomal abnormality resulting from a defect or irregularity in cell division occurring either before or after conception, and regardless of whether the affected cells are female or male (Mohamed Hassan Ghanem, 2019) , it leads to structural and functional impairments in the brain and nervous system. These impairments manifest as intellectual disability or disturbances in the perceptual, motor, and cognitive skills of the body, alongside congenital physical features and organ-level anomalies.

Numerous studies have indicated that half of a child's intellectual and cognitive capacities are fully developed before the age of four a developmental milestone that children with Down syndrome typically do not reach on the same timeline. Cognitive abilities are considered vital dimensions of child development, playing a fundamental role in learning and environmental interaction. In children with Down syndrome, multiple difficulties emerge in this domain, particularly with respect to **attention** , one of the most critical cognitive processes underpinning a wide range of higher mental functions, including perception, memory, thinking, and learning. As our senses are continuously exposed to numerous sensory stimuli during any given activity, attention serves to select both the quantity and type of information upon which concentration is focused. This process is referred to as **selective attention**, defined as the fixation of attention on specific stimuli while simultaneously inhibiting distracting or interfering inputs. In this context, the individual is required to suppress automatic responses in situations involving interference, thereby filtering information relevant to the task at hand. Children with Down syndrome are generally unable to sustain their attention on any given stimulus for more than a few seconds, a limitation attributable to their delayed cognitive development which also accounts for the observed differences, or more precisely, the delayed and disrupted progression of their sensorimotor development compared to typically developing peers. This underscores the critical need for structured training programs designed to enhance selective attention in children with Down syndrome, delivered through concrete games and exercises that facilitate comprehension and long-term retention, enabling these children to discover and engage with their surrounding environment, thereby fostering their cognitive development with particular emphasis on selective attention.

A considerable body of prior research has devoted significant attention to the topic of selective attention in children with Down syndrome, seeking to understand its nature and the various factors that influence it within this population. Some studies have approached the subject through in-depth analyses and critical reviews, alongside scholarly commentaries that highlight key findings from existing literature. These studies have also focused on

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exploring the mechanisms of selective attention and its impact on learning processes and environmental interaction, thereby contributing to a broader understanding of appropriate intervention strategies to support cognitive and behavioral development in this population.

Among the studies addressing this topic is that of researcher **Manal Kaabi (2016–2017)**, entitled "The Effect of a Psychomotor Education Program on the Development of Selective Attention in Children with Down Syndrome." This study aimed to develop a scientifically grounded educational program based on psychomotor activities, designed to assist children with Down syndrome in overcoming certain difficulties and disorders, with a particular focus on the potential to enhance or develop their selective attention. The researcher employed a case study methodology, with a sample of three children with Down syndrome between the ages of 7 and 7.5 years, selected through purposive sampling, in order to analyze the program's impact and effectiveness in improving selective attention.

Additionally, the study by **Meqdad Ibtissam and Mechri Aicha (2021–2022)**, titled "Assessing Attentional Capacity in Children with Down Syndrome: A Field Study," also employed a case study methodology with a sample of four children with Down syndrome, with the objective of determining the extent of attentional capacity in this population.

Within the framework of the present study, and based on a review of prior literature as well as direct interaction with children with mild intellectual disability due to Down syndrome, notable difficulties were observed in their general cognitive abilities, and in selective attention in particular. On this basis, the following overarching research question is posed:

Do children with mild Down syndrome experience difficulties in selective attention?

2. General Hypothesis:

Children with mild Down syndrome experience difficulties in the domain of selective attention.

3. Research Objectives:

The present study aims to:

- Identify the nature of selective attention in children with Down syndrome.
- Uncover the difficulties encountered by children with Down syndrome in the domain of selective attention.
- Lay the groundwork for further in-depth research to advance inquiry in this field.

4. Significance of the Study:

- This study addresses the population of children with intellectual disabilities, specifically Down syndrome, with a focus on examining the difficulties they encounter at the level of selective attention.

– The significance of this research derives from the variables under investigation —namely Down syndrome and selective attention — and from the objectives it seeks to achieve.

5. Study Sample:

The study sample was selected through purposive sampling, given that the aim and purpose of the study is to investigate attention in children with Down syndrome. The sample consisted of four cases of children with Down syndrome, with chronological ages ranging from 8 to 14 years, all presenting with a mild level of intellectual disability.

6. Research Methodology:

Methodology is considered a general strategy that relies on a set of principles, rules, and procedural steps that guide the researcher in achieving the objectives of the study or scientific work (Jalbi, 1992, p. 8).

The present study adopted a descriptive methodology based on the case study approach, which is defined as: "an in-depth examination of an individual case, proceeding from the observation of a specific situation and linking it to the subject's history, thereby enabling an understanding of their behavior" (Mahmoud, 2006).

7. Research Instruments:

Two instruments were employed in this study: the Draw-a-Man Test, used to assess intellectual ability, and the Stroop Test, used to measure selective attention.

7.1 The Goodenough Intelligence Test:

The Florence Goodenough Draw-a-Man Test was administered, a non-verbal performance-based intelligence measure selected for the purpose of classifying intelligence scores within the exploratory sample.

Description of Administration and Scoring Procedure:

The test is administered as follows: the participant is presented with a blank sheet of paper and a pencil with an eraser, and is asked to draw a man. The student's intelligence quotient is then calculated by assigning one point for each identifiable component observed in the drawing. The test comprises 51 components in total. Once the total score is obtained, a conversion table is consulted to determine the corresponding mental age. The mental age and chronological age are both converted into months, after which the mental age is divided by the chronological age and multiplied by one hundred to yield the intelligence quotient (Sharfouh, 2006).

The following table presents the total scores and their corresponding mental age equivalents:

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Table 1: Conversion of total scores on the Draw-a-Man Test into mental age equivalents.

Mental Age	3	4	5	6	7	8	9	10	11	12	13
Points	2	6	10	14	18	22	26	30	34	38	42

Intelligence is classified according to the scores obtained by the participant on the Draw-a-Man Test, as illustrated in the following table:

Table 2: Classification of Intelligence Quotient Scores

The Stroop

Test:

IQ Score	Classification
149 and above	Very Superior Intelligence
139-120	Superior Intelligence
119-110	Slightly Above Average Intelligence
109-90	Average Intelligence
89-80	Borderline Intelligence
79-70	Mild Intellectual Weakness
69	True Intellectual Delay
68-50	Moderate Intellectual Delay
Below 49	Severe Intellectual Disability

The Stroop Test was developed by John Ridley Stroop in 1935 and bears his name. It is among the most well-known attentional-visual phenomena and is widely used in the assessment of selective attention and inhibitory control — the latter referring to the competition between two response alternatives, a phenomenon commonly termed **interference**. In this regard, Dempster (1992) noted that the Stroop Test is characterized by dual-task demands, in which informational interference arises — for instance, between the ink color of a word and the suppression of another stimulus, such as the semantic meaning of that word.

The measure consists of three cards, each measuring 21 × 30 cm (Inad Thabet, 2017, p. 132):

Card A: Contains 50 words printed in black, representing color words — "red," "green," "yellow," and "blue."

Card B: Contains the same words, but this time each word is printed in an ink color that does not correspond to its semantic meaning — for example, the word "blue" is written in red ink.

Card C: Contains colored rectangles displaying the same four colors mentioned above.

The allotted response time for each card is 45 seconds. Each card consists of 10 rows, with 5 stimuli per row (Inad Thabet, 2017, p. 133).

Instructions:

Instructions must be presented separately and simplified as much as possible to ensure the child's comprehension.

Condition 1 — Card A: "I will give you a sheet of paper with words written on it. You must read the words aloud, from right to left, as quickly as possible. When you reach the bottom of the page, start reading again from the beginning until I tell you to stop — that is, after 45 seconds. If I indicate that you have made an error, you must correct it. When you are ready, begin."

Condition 2 — Card B: "On this sheet, you will do the same as before. You will read the words, and when you reach the bottom of the page, start again from the beginning."

Condition 3 — Card C: "This sheet contains colored rectangles. You must name the colors, and when you reach the end of the page, start again from the beginning until I tell you to stop."

Condition 4 — Card B (Interference Condition): "I will give you a sheet like the one I gave you before. However, this time you must tell me the color of the ink in which the words are written, rather than reading the words themselves. When you reach the end of the page, start again from the beginning until I tell you to stop."

If participants do not understand the instructions, one or two examples should be provided, as this test requires a sufficient level of comprehension (Inad Thabet, 2017, p. 133).

Scoring Procedure:

The examiner places four cards containing the expected responses before them. For each card, errors and hesitations are tracked and crossed out. The results are then transferred to a scoring sheet that includes the participant's personal information, the errors committed, the hesitations recorded, and the number of correct responses per card. If the participant skips one or more rows, these must be deducted from the total. The interference score and error score are subsequently calculated as follows:

Interference Score = Correct responses on Card C - correct responses on Card D .

Error Score = Total number of errors × 2 + number of hesitations (Inad Thabet, 2017).

Test Administration Guidelines:

- The card must not be rotated.
- The examiner must ensure the participant has adequate vision. If the participant uses reading glasses, they must wear them during the test.
- The participant must not be permitted to remove their glasses or engage in any behavior that may impede their ability to read the words, particularly during the fourth condition.
- The participant must be literate and capable of naming colors.

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- If the participant stops before the time has elapsed or upon reaching the end of the page, they should be encouraged to continue (Inad Thabet, 2017, p. 134).

8. Presentation and Analysis of Study Results:

8.1 Presentation and Analysis of Intelligence Test Results (Draw-a-Man Test):

Table 3: Analysis of intelligence test results using the Draw-a-Man Test

Case	Chronological Age	Mental Age	IQ Score	Classification
Case 1 (M.Z)	14 years	10 years, 6 months	QI = 75	Mild Intellectual Delay (Above Simple)
Case 2 (B.C)	11 years	10 years, 6 months	QI = 75	Mild Intellectual Delay (Above Simple)
Case 3 (A.A)	12 years	8 years	QI = 66	Simple Intellectual Delay
Case 4 (T.K)	10 years	8 years	QI = 66	Simple Intellectual Delay

The table presents the intelligence quotients of the children with Down syndrome following administration of the Goodenough Draw-a-Man Test. The participants' chronological ages ranged from 10 to 14 years, with mental ages estimated between 8 years and 10 years and 6 months. By dividing the mental age by the chronological age and multiplying by 100, intelligence quotients ranging from 66 to 75 were obtained. The scores obtained classify the participants within the range of simple to above-simple intellectual delay

8.2 Presentation and Analysis of Selective Attention Test Results (Stroop Test):

8.2.1 Case One:

- **Initials:** S.A
- **Age:** 12 years
- **Sex:** Male

Table 4: Results of Case One on the Stroop Selective Attention Test

Stage	Correct Responses	Incorrect Responses	Hesitations	Error Score
Stage 1 — Card A	37	0	0	0
Stage 2 — Card B	43	0	3	3
Stage 3 — Card C	43	1	0	2
Stage 4 — Card B	14	6	5	17
Interference Score	29			

An examination of the results across the various stages of the test reveals the following. In Stage 1, which required the participant to read 50 words on Card A distributed across 10 rows of 5 words each, all printed in black ink and in the complete absence of any distracting elements, the participant demonstrated a reasonable capacity to read a substantial

number of words correctly, with no errors or hesitations. The response pattern was notably fluent, and the participant did not require a prolonged period to read the words or transition between rows. The card was withdrawn upon the expiration of the allotted 45-second time limit.

In Stage 2 (Card B), which required reading the words as written — that is, activating the semantic dimension while inhibiting the color dimension, the participant initially had difficulty grasping the instructions, necessitating repeated explanation. Once comprehension was achieved, however, the participant engaged well and proceeded with noticeable concentration. The outcome was generally positive; the participant successfully read most of the words without errors, despite minor hesitations on select items. Although the full card was not completed within the 45-second limit, meaningful progress was recorded before the card was withdrawn.

In Stage 3 (Card C — the color-naming task), which required naming the colors of the rectangles, the participant demonstrated a good ability to grasp the instructions from the first attempt, reflecting improved concentration and task comprehension relative to the preceding stage. The participant was able to correctly name most of the colors, with only one error.

With respect to Stage 4 — the interference condition — the participant was presented with Card B again, this time instructed to name the ink color of each word while ignoring its semantic content, thereby engaging both perceptual identification of color and inhibition of the word's meaning. This constitutes a dual-processing task. In this condition, the participant displayed notable difficulty in selecting the appropriate stimuli and was visibly susceptible to distraction, failing to sustain focused attention throughout. This stage demands complex perceptual processing and a heightened degree of attentional control. The number of errors in this condition reached 6, and the interference score indicates considerable difficulty in resisting distraction.

8.2.2 Case Two:

- **Initials:** H.L
- **Age:** 11 years
- **Sex:** Female

Table 5: Results of Case Two on the Stroop Selective Attention Test

Stage	Correct Responses	Incorrect Responses	Hesitations	Error Score
Stage 1 — Card A	10	1	0	2
Stage 2 — Card B	10		0	0
Stage 3 — Card C	25	1	0	2
Stage 4 — Card B	18	2	3	7
Interference Score	7			

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An examination of the participant's results across the various stages of the test, as presented in the preceding table, reveals the following. In Stage 1, which required reading 50 words on Card A — distributed across 10 rows of 5 words each, all printed in black ink, and in the complete absence of any distracting elements — the participant managed to read a reasonable number of words correctly within the allotted 45-second time limit. However, a notably slow response rate was observed; the participant required an extended period to read each individual word and exhibited delayed transitions between rows, reflecting a deliberate effort to sustain attentional focus. The card was withdrawn upon expiration of the time limit, with one error and no hesitations recorded.

In Stage 2 (Card B), which required reading the words as written — that is, activating the semantic dimension of each word while inhibiting its color dimension — the participant initially had difficulty grasping the instructions, necessitating repeated explanation. Once comprehension was achieved, however, the participant engaged positively and proceeded with noticeable concentration. The results were considered satisfactory given the participant's underlying reading difficulties; several words were read without errors, and no hesitations were recorded. The card was not completed within the allotted 45-second period and was withdrawn at the time limit.

In Stage 3 (Card C — the color-naming task), which required the participant to name the colors of the rectangles, the participant demonstrated a good ability to understand the task from the first attempt, indicating improved concentration and task comprehension relative to the preceding stage. Most colors were named correctly, with only one error recorded.

With respect to Stage 4 — the interference condition — the participant was presented again with Card B, this time instructed to name the ink color of each word while ignoring its written content, thereby engaging perceptual color identification while inhibiting the word's semantic meaning. This constitutes a dual-processing task. In this condition, the participant did not appear to encounter pronounced difficulty in selecting the appropriate stimuli and was not markedly susceptible to distraction; however, sustained attentional focus was not fully maintained throughout. Given the complex perceptual processing and heightened attentional control demanded by this stage, only 2 errors were recorded. The interference score nonetheless indicates a moderate degree of difficulty in resisting distraction.

8.2.3 Case Three:

- **Initials:** R.A
- **Age:** 14 years
- **Sex:** Male

Table 6: Results of Case Three on the Stroop Selective Attention Test

Stage	Correct Responses	Incorrect Responses	Hesitations	Error Score
Stage 1 — Card A	15	5	1	11
Stage 2 — Card B	12	3	3	9
Stage 3 — Card C	28	4	2	10
Stage 4 — Card B	25	10	5	25
Interference Score	3			

As presented in the preceding table, reveals the following. In Stage 1, which required reading 50 words on Card A — distributed across 10 rows of 5 words each, all printed in black ink, and in the complete absence of any distracting elements — the participant was unable to read a large number of words correctly within the allotted 45-second period. A markedly slow response rate was observed, accompanied by hyperactivity and excessive verbalization. The participant required considerable time to read each individual word and exhibited delayed transitions between rows, reflecting an effortful attempt to sustain attentional focus. The card was withdrawn upon expiration of the time limit, with 5 errors and 1 hesitation recorded.

In Stage 2 (Card B), which required reading the words as written — that is, activating the semantic dimension of each word while inhibiting its color dimension — the participant initially had difficulty grasping the instructions, necessitating repeated explanation. Once comprehension was achieved, the participant's engagement remained limited due to persistent hyperactivity and attentional distraction, resulting in markedly poor concentration during task execution. The overall results were modest given the participant's underlying reading difficulties; some words were read with errors, and several hesitations were noted throughout. The card was not completed within the allotted 45-second period and was withdrawn at the time limit.

In Stage 3 (Card C — the color-naming task), which required the participant to name the colors of the rectangles, the participant demonstrated a good ability to understand the task from the first attempt, indicating improved concentration and task comprehension relative to the preceding stage. Most colors were named correctly, with 4 errors and 2 hesitations recorded.

With respect to Stage 4 — the interference condition — the participant was presented again with Card B, this time instructed to name the ink color of each word while ignoring its written content, thereby engaging perceptual color identification while inhibiting the word's semantic meaning. This constitutes a dual-processing task. In this condition, the participant was visibly susceptible to distraction and failed to maintain sustained attentional focus throughout. Given the complex perceptual processing and heightened attentional control

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demanded by this stage, 10 errors were recorded in total, though only 2 were attributed to the interference condition specifically. The interference score in this case is markedly pronounced, clearly indicating substantial difficulty in resisting distraction and maintaining inhibitory control.

8.2.4 Case Four:

- **Initials:** B.J
- **Age:** 10 years
- **Sex:** Female

Table 7: Results of Case Four on the Stroop Selective Attention Test

Stage	Correct Responses	Incorrect Responses	Hesitations	Error Score
Stage 1 — Card A	19	3	2	8
Stage 2 — Card B	12	2	4	8
Stage 3 — Card C	20	2	0	4
Stage 4 — Card B	10	3	6	12
Interference Score	10			

As presented in the preceding table, reveals the following. In Stage 1, which required reading 50 words on Card A — distributed across 10 rows of 5 words each, all printed in black ink, and in the complete absence of any distracting elements — the participant managed to read a reasonable number of words correctly within the allotted 45-second period. However, a notably slow response rate was observed; the participant required an extended period to read each individual word and exhibited delayed transitions between rows, reflecting a deliberate effort to sustain attentional focus. The card was withdrawn upon expiration of the time limit, with 3 errors and 2 hesitations recorded.

In Stage 2 (Card B), which required reading the words as written — that is, activating the semantic dimension of each word while inhibiting its color dimension — the participant initially had difficulty grasping the instructions, necessitating repeated explanation. Once comprehension was achieved, however, the participant engaged positively and proceeded with relatively noticeable concentration. The results were considered satisfactory given the participant's underlying reading difficulties; some words were read correctly, while 2 errors and 4 hesitations were recorded throughout. The card was not completed within the allotted 45-second period and was withdrawn at the time limit.

In Stage 3 (Card C — the color-naming task), which required the participant to name the colors of the rectangles, the participant demonstrated a good ability to understand the

task from the first attempt, indicating improved concentration and task comprehension relative to the preceding stage. Several colors were named correctly, with 2 errors recorded.

With respect to Stage 4 — the interference condition — the participant was presented again with Card B, this time instructed to name the ink color of each word while ignoring its written content, thereby engaging perceptual color identification while inhibiting the word's semantic meaning. This constitutes a dual-processing task. In this condition, the participant exhibited clear difficulty in selecting the appropriate stimuli and was noticeably susceptible to distraction, failing to maintain sustained attentional focus throughout. Given the complex perceptual processing and heightened attentional control demanded by this stage, 3 errors were recorded. The interference score, estimated at 10, indicates a moderate though discernible degree of difficulty in resisting distraction.

9. Discussion of Results:

Based on the findings obtained following the administration of the Stroop Test to the study sample of children with Down syndrome, it becomes evident that these children experience clear deficits and disturbances in the domain of selective attention. The results demonstrate that the participants encountered difficulty both in the selection of relevant stimuli and in the maintenance of sustained attention. Although correct response rates were recorded across the various stages of the test, errors and hesitations increased markedly as task demands escalated and greater selective attentional capacity was required.

These findings are consistent with those reported in prior studies, including the work of Manal Kaabi (2016–2017), entitled "The Effect of a Psychomotor Education Program on the Development of Selective Attention in Children with Down Syndrome." That study documented a positive and meaningful effect on selective attention as a disrupted cognitive function, with impairments manifesting during Stroop Test administration in the form of slow response latency, an inability to employ inhibitory control and regulate impulsivity, and a lack of visual monitoring — particularly with respect to repeated colors and successive rectangles. Additional behavioral observations included excessive motor activity during testing, failure to comply with instructions, and rapid onset of fatigue, all of which contributed to an inability to complete the test.

These findings are further corroborated by Meqdad Ibtiham and Mechri Aicha (2021–2022) in their study "Assessing Attentional Capacity in Children with Down Syndrome," which concluded that lower error scores on the Stroop Test cards are indicative of better attentional capacity, while higher error rates reflect selective attention deficits. Notably, that study found that children with Down syndrome who had been integrated into mainstream educational settings demonstrated superior attentional capacity relative to those who had not.

Returning to the results of the present study, participants consistently required extended response times for both word reading and color naming tasks, reflecting slow processing speed. This pattern further confirms the presence of selective attention deficits in children with Down syndrome, who demonstrate difficulty both in sustaining attention over

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time and in flexibly shifting attentional focus. While these children are capable of directing their attention briefly toward a given stimulus, they encounter marked difficulty when tasks require dual-processing of stimuli — such as simultaneous color naming and word reading.

On this basis, the primary hypothesis of the study is confirmed: children with Down syndrome do indeed experience significant difficulties in the domain of selective attention.

Conclusion:

The present study examined selective attention in children with mild Down syndrome, with the aim of illuminating this particular cognitive function and the difficulties these children encounter in discriminating between relevant and irrelevant stimuli within their environment.

The study was conducted on a sample of four children with mild Down syndrome. An intelligence assessment was administered to determine each participant's IQ and mental age, alongside the Stroop Test to measure the degree of selective attentional control. Analysis and interpretation of the results revealed that children with mild Down syndrome demonstrate marked difficulties in regulating their selective attention, exhibiting delayed response times and impaired inhibition of automatic responses to irrelevant stimuli. These findings confirm the study's hypothesis that this population experiences significant challenges in the domain of selective attention.

These findings carry meaningful implications, particularly given that childhood constitutes one of the most critical developmental periods upon which subsequent psychological and cognitive growth is built. It is within this framework that the present study sought to investigate a precise and significant cognitive dimension in a particular group of children — those with mild Down syndrome.

In light of the foregoing, the following practical recommendations are offered with the aim of contributing to the improvement and development of cognitive capacities in this population:

- Providing an appropriate educational environment that minimizes developmental barriers through modern and integrated educational and therapeutic programs.
- Prioritizing the development of selective attention skills in children with Down syndrome, given its role as a foundational component of broader cognitive functioning.
- Incorporating structured training programs that target selective attention through sensory and motor activities, as well as exercises utilizing visual and auditory tools.
- Offering continuous psychological support to these children and their caregivers, in order to help them overcome difficulties and strengthen adaptive coping strategies.
- Coordinating efforts among specialists across psychological, linguistic, and cognitive domains to ensure comprehensive and integrated care for the child.
- Adopting positive behavioral modification strategies, such as immediate reinforcement and symbolic rewards to effectively support the development of concentration and attentional skills.

References

1. Al-Areedh, S. S. (1969). Towards a Better Life for Children with Down Syndrome. Center for Disability Studies and Research, Cairo.
2. Al-Jalbi, A. A. R. (1992). Methods of Social Research. Dar Al-Ma'rifa Al-Jami'iyya, Alexandria.
3. Al-Qatami, Y. (2000). Cognitive and Linguistic Development in Children (1st ed.). Al-Ahliyya for Publishing and Distribution, Jordan.
4. Inad Thabet, I. (2016–2017). An Exploratory and Preventive Study of Metacognitive Disorder in Children with Attention Deficit Hyperactivity Disorder [Published doctoral dissertation]. University of Tlemcen, Faculty of Human and Social Sciences.
5. Kaabi, M. (2015–2017). The Effect of a Psychomotor Education Program on the Development of Selective Attention in Children with Down Syndrome [Unpublished master's thesis].
6. Sharfouh, A. B. (2006). The Impact of Reading on Aggressive Behavior in Individuals with Dyslexia [Published doctoral dissertation]. University of Algiers 2, Faculty of Social Sciences.