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تقييم الذاكرة الدلالية لدى الأطفال المصابين بالإعاقة الحركية الدماغية

Evaluation of semantic memory for children with cerebral motor impairment (CMI)

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مستخلص البحث:

قامت هذه الدراسة لتقييم الذاكرة الدلالية لدى عينة من الأطفال المصابين بالإعاقة الحركية الدماغية، وكان هدف الدراسة تقييم الوعي والادراك الدلالي الفونولوجي، والفهم والذاكرة البصرية، السمعية واللفظية لدى هؤلاء الأطفال. لتحقيق هدف الدراسة استخدم الباحثان منهج دراسة حالة وتكونت العينة من خمس (٠٥) حالات تتراوح أعمارهم ما بين (٠٨) و (١٢) سنة، كما استخدم الباحثان اختبار عبد العزيز الذي يقيس الذاكرة الدلالية. وقامت الدراسة بالتحليل الكمي والكيفي للنتائج للتحقق من الفرضيات. توصلت الدراسة الى ان فئة الأطفال المعاقين حركيا دماغيا (IMC)لا يعانون من اضطراب في الذاكرة الدلالية، ووجدت الدراسة أن الأطفال المعاقين حركيا دماغيا (IMC) لديهم اضطراب في التكرار الدلالي للأرقام والتركيب الايقاعي الدلالي والاحساس والتمييز الفونولوجي. وأوصت الدراسة بضرورة إعادة النظر في بناء المناهج التعليمية

الكلمات المفتاحية: الوعى، الفهم، الذاكرة، الاحساس، التمييز الفونولوجى.

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Abstract:

This research evaluated semantic memory for a sample of children with cerebral motor disability. The research aimed to evaluate awareness, phonological semantic awareness, and visual, auditory, and verbal understanding and memory in these children. To achieve the research goal, the researchers used the case study method, and the sample consisted of five (05) cases, whose ages ranged between (08) and (12) years. The researchers also used semantic memory scale (Saad, 2010). The research carried out quantitative and qualitative analysis of the results to verify the hypotheses. The research found that the group of children with cerebral motor disabilities (CMI) do not suffer from a disorder in semantic memory. The study found that children with cerebral motor disabilities (CMI) have a disorder in the semantic repetition of numbers, semantic rhythmic structure, sensation, and phonological discrimination

The study recommended the necessity of reconsidering the construction of educational curricula,

Keywords:Awareness, understanding, memory, sensation, and phonological discrimination

Introduction:

Childhood is considered one of the most important stages of development in a person's life because it is the basic formation and building stage of the child's personality and behavior.

In recent years, increased interest in people with disabilities has begun in various parts of the Arab world through scientific research and studies, educational, social, and medical services, and the invention of many prosthetic and educational devices that helped the disabled to approach the world of normal people.

Because of this rapid development in the level and quality of these services, it has become incumbent on the bodies and entities responsible for caring for people with

special needs to pay attention to these new programs and research and provide the material scientific, training, and qualification of specialized cadres in this field. Therefore, society's view of people with disabilities must be changed from considering them a burden society, but they, like other members of society, have the right to life, education, and training, each according to their disability because they are part of human wealth and must develop it and benefit from their energies so that they can be productive individuals in their society and not a burden on it.

Disability is one of the social issues that has received attention from specialists and researchers because of its negative effects on the disabled person, his family, and society, the greatest impact on the disabled person is greater than the extent of the injury itself, which leads to his distancing himself, feeling isolated, lonely, and introverted, and avoiding social relationships because he feels inferior and different from his ordinary peers, which requires us to intervene so as not to be affected his psychological stability, social interaction, and academic achievement are affected. In this case, in addition to providing health and treatment programs, we must provide modern educational services through various educational courses and artistic programs to help him get through this crisis and feel that he is an individual in society.

The nervous system is one of the most distinguished, important, and complex systems of the body because it is considered the leading and controlling system in the human body in general.

From an anatomical point of view, it is a general communication network that connects all parts of the body through a group of nerves extending from the various parts of the body and its organs but from a functional point of view, it supervises all organic and cognitive functions and

combines them to achieve the unity and integration of the organism.

Any injury at this level can result in several problems that hinder the normal course of life of the individual, especially in the embryonic stage or childhood, which is considered, according to scientific studies and research, one of the most common stages in which injuries occur at the level of the nervous system and result in various disorders represented in the loss of mental functions. or sensory, motor and thus impede the child's normal development in one or all areas,

Neuromotor disability is among the effects resulting from this, which affects from (1) to (2) out of every (1000) children, especially among infants who suffer from low birth weight, according to DSM evidence (Margaret C. MC Bride Northeast Ohio, Medical University).

Cerebral palsy occurs as a result of injury to the cerebral cortex which is the source of all voluntary motor neuron flashes that control skeletal muscles and its name differs between cerebral motor impairment (CMI), cerebral palsy, or what was previously common with (Littlemps disease), and this is according to the accompanying disorders but it remains the same disability.

(Tardieu, G.) defined it as a motor disability resulting from an early brain injury (from formation to two years), non-hereditary, fixed (non-progressive), or responsible for exclusive or dominant motor impairment.

Where this disability includes, according to its various levels and degrees, disabilities at the postural and motor levels, and it can also include disabilities related to higher functions such as memory and intelligence disorders. Most of the children with cerebral palsy suffer from weakness or cognitive deficit, along with other articles that included behavioral and cognitive problems associated with cerebral

palsy represented in acquaintance problems, memory, and learning disorders, movement disorders, attention deficit, and poor concentration, in addition to the study that she carried out (Ghazal, 2014-2015), through which it aims to evaluate the cognitive processes of these children and the variation of deficiencies and their capabilities in cognitive performance, and its results concluded that the category of the cerebral motor handicapped (CMI) suffers from severe difficulties in the cognitive aspect and immaturity in the level of selective visual attention, perception, and visual memory.

The level of appearance of these disorders also differs according to the depth and degree of brain injury, Quinn shows in his definition of cerebral palsy that it is often accompanied by sensory, emotional, and cognitive disorders, and the latter results in several problems when acquiring language due to its importance in most cognitive activities as a tool for treatment Informatics, as well as the expression of the individual's needs, and more than that, the researchers find that memory also depends on language to store data and information, and this is according to Meleus who believes that there is no language acquisition and learning without memory, especially the semantic memory, which is essential in the use of language and the conduct of various other cognitive activities.

The average child whose competencies are sound in remembering events and general concepts develops according to age, which was confirmed by the studies of (Orustein Gordon, Ward, Baker, 1993, and Quinn, 2021), generally before the age of seven they are weak, but between 7 and 13 years they rise, the older the child, the better his memory and his recollection of concepts and they developed faster, and the weakness of this ability in people with special needs leads to the difficulty of memorizing,

storing and remembering life events, and thus a lack of concepts and language in general, and as contemporary research indicates the emergence of memory disorders among children with cerebral motor paralysis,

Where a study conducted by each research group by (Vargha Khadam, 1997) and (Gardieu et al, 2000) showed a study of memory loss in people with cerebral motor disability (CMI) at an early stage, due to the lack of oxygen (Anoxie, Hypoxie). These children suffer from difficulties in juvenile memory, knowing that their IQ is normal and they can read, verbally express, and study as well, but their performance in long-term memory of oral or visual information is very weak and disturbed (a recall disorder).

The cognitive aspect is one of the most important aspects that the individual needs in his life, and the cognitive aspect means the different information that the man acquires in the daily situations that he is exposed to, related to the process related to the method of acquiring this information and keeping it in memory and reusing it, and when this information acquired by the person has a relationship with events, concepts, and meanings, here he is dealing with semantic memory, which is a concept for storing the meaning of a word, as it is a collection of knowledge that carries special connotations that can be considered an internal dictionary.

Thus, any brain injury may affect memory and its functioning, and memory disorders are numerous, as they include both disorders of memory acquisition (encoding), preservation of long-term memory (storing), and disorders of using stored information (retrieval).

Memory disorders are among the most common cognitive disorders among children with cerebral motor impairment (CMI), as (Sharly , 2023) sees that memory

difficulties or disorders among these children appear at the level of long-term memory and they suffer from difficulties in retention, and it is a disturbance at the level of semantic memory among a child (CMI) at the age of 10 years who suffers from amnesia after suffering from encephalopathy, where a disturbance was observed at the level of semantic memory as well as event memory.

Thus, semantic memory is considered a mental and cognitive ability of great importance in all simple fields, as its disturbance leads to several problems that impede the course of the child's life

Research problem:

The researchers sought through the aforementioned studies that there is little interest in semantic memory for children with cerebral palsy, especially in the Algerian and Egyptian communities, and this is what aroused the researchers' curiosity and prompted us to conduct scientific research and a field study that includes this category to obtain results and recommendations that serve them.

Hence, the main problem can be simplified by answering the following main question:

Does a child with cerebral motor paralysis suffer from a disorder in semantic memory?

To cover all the research's aspects, the following partial questions were more accurately identified:

- Does the child with cerebral motor paralysis suffer from a disorder in the semantic repetition of words?
- Does the child with cerebral motor paralysis suffer from a disorder in the semantic repetition of numbers?
- Does the child with cerebral motor paralysis suffer from a rhythmic-semantic structure disorder?

- Does the child with cerebral motor paralysis suffer from a disorder of sensation and phonological discrimination?
- Does the child with cerebral motor paralysis suffer from a disorder in understanding vocabulary?
- Does the child with cerebral motor paralysis suffer from a disorder in recognizing the significance of pictures?
- Does the child with cerebral motor paralysis suffer from a disorder in recognizing classification and semantic arrangement?
- Does the child with cerebral motor paralysis suffer from a disorder in understanding and functional linking of sentences?

Research hypotheses:

General hypothesis:

A child with cerebral motor palsy suffers from a semantic memory disorder.

Partial hypotheses:

- The child with cerebral palsy suffers from a disorder in the semantic repetition of words.
- The child with cerebral palsy suffers from a disorder in the semantic repetition of numbers.
- The child with cerebral palsy suffers from a rhythmic-semantic structure disorder.
- The child with cerebral palsy suffers from a disorder of sensation and phonological discrimination.
- The child with cerebral palsy suffers from a disorder in understanding vocabulary.

- The child with cerebral palsy suffers from a disorder in recognizing the significance of images.
- The child with cerebral palsy suffers from a disorder in recognizing classification and semantic ordering.
- The child with cerebral palsy suffers from a disorder in understanding and functional linking of sentences.

The research Objectives:

This research aims to assess the semantic memory of the cerebral motor handicap, as well as to reveal the level of performance on the semantic repetition of words and numbers, rhythmic-semantic structure, sensation, and phonological discrimination, understanding vocabulary, recognizing photo evidence, identifying the classification and semantic structure, and understanding and functional linking of sentences.

Last but not least, the researchers wanted to reveal the extent of the impact of cerebral motor impairment on the cognitive side of the patient, especially semantic memory.

The research importance:

This research is concerned with the category of children with cerebral motor disabilities, as it focuses on semantic memory by attempting to draw the attention of specialists in the field and researchers to this topic, which is the semantic memory of children with cerebral motor disabilities, contributing to the enrichment of developmental research on semantic memory. This research provides theoretical information about cerebral motor impairment, which allows an understanding of this category, especially from the cognitive side (semantic memory).

Definition of concepts:

1- Mobility disability:

Theoretically: it is a physical obstacle that prevents the individual from performing motor or sensory functions, or both, accompanied by a difference in motor balance, and the affected individual needs psychological, medical, social, educational, and moral programs to help him achieve his goals in his life (Ali & Pamila, 2023, p. 10)

Fahmy also defined the disabled as the individual who has a defect that causes the muscles, bones, or joints to not be able to perform their normal function, and this condition is either the result of an accident or disease or it is congenital.

2- Cerebral Palsy:

The word paralysis refers to the inability of the child to achieve normal development in movement, such as controlling the muscles of the neck and trunk, using the hands, sitting, crawling, standing, and walking.

The word cerebral indicates that the reason for this is due to the incomplete growth or defect in the cells of the areas responsible for movement, texture, and balance in the brain (the central nervous system).

So, cerebral palsy is a term with a wide meaning that is usually used to refer to any paralysis, weakness, or motor imbalance that results from brain damage.

3- semantic memory:

It is intended for the memory of words, concepts, rules, and abstract ideas, and it is necessary for the use of language. It is the mental organization of information that an individual processes from words and various other verbal symbols, their meanings, and references, in addition to the relationships and rules that govern them, and the systems necessary to process these symbols, concepts, and relationships (Ounis , 2020-2021, p. 88)

procedurally:

Semantic memory is considered one of the most important cognitive processes, and these processes are interrelated with each other, as it refers to the general knowledge accumulated throughout our lives. This general knowledge is intertwined with experience and depends on culture.

Semantic memory is what the researchers can measure and evaluate its disturbances through Saad scale from 6 to 10 years.

Research method:

Research Curriculum:

The researchers followed the descriptive method through which the cases are taken care of or studied separately, and this method is considered one of the best methods because it is closer to objectivity and suits the research nature. The stages it goes through to reach scientific generalizations related to the unit studied, and the researchers have relied on the case study method which is a statement on all the information collected about the case in individual interviews.

Research Sample:

The research group consisted of 5 cases with cerebral motor impairment, which were selected according to several conditions that can be summarized as follows: their age between 8 and 12 years old (male and female). They don't suffer from visual disturbances or hearing impairments, or relating to a mental disability (IMOC).

Note: The age of applying the semantic memory scale of Saad Abdel Aziz ranges from 6 to 10 years, and since the research group includes children with cerebral motor disabilities, the researchers had to add two years to the

actual age of the scale, and this is of course under the knowledge and supervision of our teachers.

The following table shows us the characteristics of the research group

Table No. (01): Shows the characteristics of the research group

Number	Name	Age	Gender	Rank	Type of Disability	cause of disability	place of injury
1	Zaid	12 years	male	The first	paroxysmal cerebral palsy (unbalanced) tripartite	-	cerebellum
2	Abeer	10 years	female	The first	sprained cerebral palsy (flounder)	-	the middle frontal part of the brain
3	Abdul Latif	11 years	male	The second and last	Lower hemisphere cerebral motor impairment of the spastic type	Prematurity	The subcortical lesion is dominant in the right hemisphere of the brain
4	Khadija	8 years	female	The first and the last	Unilateral paresthesia	prematurity	Lack of oxygen in the brain
5	Mohammed is	12 years	male	The first and last	unilateral spastic cerebral motor impairment	prematurity	Lack of oxygen in the brain

Research tools:

1- **The semantic memory scale - Abdel Aziz Saad - from 6 to 10 years:**

Definition: It is a set of language tests adapted from the available language ability test scales, which depend on the characteristics of semantic memory.

1-1- **Scale goals:**

This scale aims to identify the child's abilities in (the semantic repetition of words, the semantic repetition of numbers, the production of semantic rhythmic structure, sensation, and phonological discrimination, understanding vocabulary, the meanings of images, classification and semantic arrangement, and understanding and functional linking of sentences).

1-2- **Dimensions covered by the scale:**

a) the phonological semantic dimension of memory.
b) visual, auditory, and verbal comprehension and memory.
c) Phonological semantic awareness and perception.

1-3- **scale divisions**

A- Semantic repetition of words:

Instruction: The test contains ten (10) words in each column (a) and (b), where the child is asked to repeat the same connotation in the corresponding column, based on this instruction:

Repeat twice the word and then pronounce the word that has the same meaning on the opposite side of the table.

Scoring:

If the child succeeds in pronouncing the two words correctly, he gets one (01) point, regardless of the validity of their connotation. If the word choice is correct, he gets a second point (1).

Accordingly, the child who succeeds in pronunciation and selection gets two (02) points, and the total number of points is twenty (20) points.

B- Semantic repetition of numbers:

Instruction: The test contains nine (9) chains of numbers distributed into three groups A, B, and C, with three chains in each group, and in order, the researchers throw the chains

in front of the child, chain by chain, and the researchers ask him whenever they finish a specific series to repeat it behind us at a rate of one second for each number. Listen to this series of numbers and then repeat them as you heard them in order.

Scoring:

If the child succeeds in pronouncing a complete series and within the required speed, the researchers give him (1) point, and if the child fails in a complete group and does not get any mark in it, the next group is canceled directly.

Accordingly, the child who succeeds in pronouncing all the chains in the various groups gets nine (9) points.

C- Semantic rhythmic structure:

Instruction: The test contains (16) a group of rhythmic beats that differ from each other in their sound structure. The examiner produces them one by one and asks the child to reproduce them behind him while allowing him to repeat them three times based on the following instruction: “Listen carefully, how do I beat, then repeat the beats like me?” completely".

Scoring:

If the child succeeds in re-knocking correctly, he gets a point (1), but after reaching the ninth group (9), the researchers stop the test after 3 consecutive errors. The total number of points that the owner of the complete answer may get is 16 points.

D- Sensation and phonological discrimination:

Instruction: The test is based on the principle of (rime) “tone”, which stems from the idea of harmony and congruence in tone. The test contains 20 pairs of sound syllables. The child is asked to recognize whether the two syllables presented to him have the same tone or not, and

before that the researchers explained the principle of similarity between tones so that he can understand, and then they give him the following instruction: “Notice carefully these pairs presented in front of you and listen to my reading of them, and you have to repeat them behind me and then determine whether they are similar in tone or not.”

Scoring:

If the child succeeds in identifying the similarity or not, he gets (1) point. The total number of points that the owner of the complete answer may get is (20) points.

E- Understanding vocabulary:

Instruction: The test contains 21 items distributed into three groups (6 items for colors, 6 items for shapes, and 9 items for body parts). It has its own instruction set, which is as follows:

1. Colors: “I will tell you the color and you show it to me. From among these colors in front of you, show me the purple color...etc.”

2. Shapes: "Show me the drawing I ask of you, show me the square...etc."

3. Body parts: I will tell you the names of some parts of your body and you put your finger on them, show me your arm...etc.

Scoring:

If the child succeeds in recognizing each word, he gets a point (1), the total number of points that the person with the full answer may get is 21 points.

Instruction: the researchers show the pictures to the child one after the other and ask him what the picture represents, and they give 10 seconds for each picture.

- This item takes 10 minutes.

Scoring:

For each correct answer, one (01) point, which includes: Giving the appropriate name and indicative of the submitted picture.

Therefore, the total points for the item are 75 n.

If a wrong answer is submitted, it will score zero (0)

G- Item Classification and Semantic Arrangement:

(The researchers use the same pictures as the previous item)

Instruction: the researchers ask the child to arrange and classify the pictures according to their belonging to the same type and group.

- They offer this item for 20 minutes.

Scoring: the researchers award one point for each correct answer, i.e. for each stage of the classification.

The total score for this item is 15 n.

H - Clause understanding and functional linking of sentences:

The researchers show him the picture and ask him some sentence suggestions to determine the characteristics of the object in the picture, and they ask him to select the correct sentences that are appropriate for the picture as well as the wrong ones, it includes 6 cards in each card that includes 05 sentences for the appropriate picture.

The researchers use: - a visual input or stimulus (the image);

A verbal introduction or stimulus (sentence).

Repeat questions in light of the image to be answered, including 5 questions corresponding to an image.

instruction:

The researchers will give you five sentences that represent the picture in front of you. Answer yes or no

The time limit for this item is 15 minutes.

Scoring: (01n) point for each correct answer that is appropriate to the object shown in the picture, and zero (0n) for the wrong answer that is not related to the picture. The total item score is 30n

1-4- Psychometric Characteristics:

The psychometric characteristics of the semantic memory test were measured as follows:

Validity: The scale is considered valid if it measures what was set to measure it, knowing that there are several types of validity and the researcher (Saad, 2010) relied on two types of Structural honesty and subjective honesty

Stability: It refers to the consistency of the scores extracted from the responses of the same individuals when they are re-tested with the same test at different times.

1- Structural validity of the semantic memory test (validity):

Structural validity in the current scale is confirmed by using the compatibility correlation coefficient between the degree of one statement and the total score of the dimensions that include it on the other hand, then calculating the correlation matrix between the different dimensions of the scale on the third hand.

2- The subjective validity of the semantic memory test (validity):

The subjective validity is the square root of the test stability coefficient, and after calculating the stability, which was equal to 0.97, then the square root is equal to 0.98, so the test achieved subjective validity.

3- Re-application of the semantic memory test (stability):

The stability coefficient of the scale using reapplication was (0.97).

The stability coefficient of the scale is statistically significant at the level of (0.01), which indicates that the scale has a high degree of stability that suits the purposes of

scientific research and achieves its reliability in the stability of its results when applied to measure semantic memory among the research sample.

4- The internal consistency of the semantic memory test (stability):

Table No. (02): summarizes the various psychometric characteristics of the semantic memory scale

The test	Degree	Significance
(a) Validity		
(1) Construct validity	0.91	significant
(2) Self-validity	0.98	good
(b) Stability		
3) Stability coefficient by reapplying the test	0.97	significant
(4) Cronbach's alpha coefficient	0.68	good

The researchers conclude from the foregoing that the research tool fulfilled the psychometric conditions for a good test and that it fulfilled the research purposes. (Saad , 2009-2010, p. 98)

The statistical methods used:

Accurate verification of hypotheses requires appropriate statistical treatments. The aim of using statistical methods is to reach quantitative indicators that help us analyze, interpret, and judge. To reach objective results and accurate judgments, the researchers have relied in this research on statistical tools, which are:

Percentages: Percentages were used as a primary determinant of the percentages of marks obtained by

children with cerebral palsy in the application of the semantic memory test

View and analyze the results of the semantic memory test:

1- Presentation and analysis of the results of the semantic frequency test:

1-1- View the results of the semantic frequency test for words:

Table No. (03): Represents the results of the semantic repetition of words test

Cases	Marks	The ratios
First case	14\20	70
Second case	17\20	85
Third case	16\20	80
Fourth case	18\20	90
Fifth case	17\20	85
Arithmetic mean	16.4	82

1-2- Analysis of the results recorded in the table:

The results obtained through the application of the semantic repetition of words test for children with cerebral palsy (from 8 to 12 years) turned out to be high, as the highest obtained value is 18/20, equivalent to 90%, while the lowest obtained value is 14/20, equivalent to 70 %, and the arithmetic mean of the sum of these results was estimated at 16.4, equivalent to 82%, so these results are high, which indicates that children with cerebral palsy have repetition capabilities, which means that they do not have a disorder in the semantic repetition of words.

2- Presentation and analysis of the results of the semantic test of numbers:

2-1- View the results of the semantic frequency test for numbers:

Table (04): represents the results of the semantic repetition test for numbers

Cases	Marks	The ratios
First case	3\9	33.33
Second case	2\9	22.22
Third case	3\9	33.33
Fourth case	1\9	11.11
Fifth case	3\9	33.33
Arithmetic mean	2.4	26.66

2-2- Analysis of the results recorded in the table:

The results obtained through the application of the semantic repetition of numbers test for children with cerebral palsy (from 8 to 12 years) turned out to be low, as the highest value obtained is 3, which is equivalent to 33.33%, while the lowest value obtained is 1, which is equivalent to 11.11%. The arithmetic mean of the sum of these results was estimated at 2.4, equivalent to 26.66%. Therefore, these results are low, which indicates that children with cerebral palsy do not have repetition abilities, which means that they have a disorder in the semantic repetition of numbers.

3- Presentation and analysis of the rhythmic-semantic structure test results:

3-1- View the results of the semantic rhythmic structure test:

Table (05): represents the results of the semantic rhythmic composition test

Cases	Marks	The ratios
First case	3\16	18.75
Second case	2\16	12.5
Third case	1\16	6.25
Fourth case	8\16	50
Fifth case	3\16	18.75
Arithmetic mean	3.4	21.5

3-2- Analysis of the results recorded in the table:

The results obtained through the application of the rhythmic-indicative structure test for children with cerebral palsy (from 08 to 12 years) turned out to be low, as the highest obtained value is (08) which is equivalent to 50%, while the lowest obtained value is (01) which is equivalent to 6.25%.

As for the arithmetic mean of the sum of these results, it was estimated at (3.4), equivalent to 21.5%, so these results are low, which means that they have a disorder in the rhythmic-semantic composition level.

4- Presentation and analysis of the results of the sensation and phonological discrimination test:

4-1- View the results of the Sense and Phonological Discrimination test:

Table (06): Represents the results of the sensation and phonological discrimination test

Cases	Marks	The ratios
First case	10\20	50
Second case	0\20	0
Third case	0\20	0
Fourth case	11\20	55
Fifth case	9\20	45
Arithmetic mean	6	30

4-2- Analysis of the results recorded in the table: The results obtained through the application of the sensation and phonological discrimination test for children with cerebral palsy (from 08 to 12 years) turned out to be low, as the highest obtained value is 11, which is equivalent to 55%, while the lowest obtained value is 0 equivalent to 0%,

As for the arithmetic mean of the total of these results, it is estimated at 6, which is equivalent to 30%. Therefore, these results are low, which indicates that children with cerebral palsy can't feel and distinguish

phonologically, which means that they have a disorder in feeling and phonological discrimination.

5- View and analyze the results of the Vocabulary Comprehension Test:

5-1- View the results of the vocabulary comprehension test:

Table (07): Represents the results of the vocabulary comprehension test

Cases	Marks	The ratios
First case	17\21	80.95
Second case	12\21	57.14
Third case	18\21	85.71
Fourth case	18\21	85.71
Fifth case	11\21	52.38
Arithmetic mean	15.2	72.37

5-2- Analysis of the results recorded in the table: The results obtained through the application of the vocabulary comprehension test for children with cerebral palsy (from 08 to 12 years) turned out to be high, as the highest value obtained was 18/21, equivalent to 85.71%, while the lowest value was obtained It is 11/21, equivalent to 52.38%.

As for the arithmetic mean of the sum of these results, it was estimated at 15.2, equivalent to 72.37%, so these results are high, which indicates that children with cerebral palsy can understand most of the vocabulary that was presented to them, which means that they do not have a disorder in understanding vocabulary.

6- View and analyze the results of the photo-naming test:

6-1- View the results of the photo label test:

Table (08): Represents the results of the image naming test

Cases	Marks	The ratios
First case	68\75	90.66
Second case	54\75	72
Third case	49\75	65.33
Fourth case	55\75	73.33
Fifth case	43\75	57.33
Arithmetic mean	53.8	71.73

6-2- Analysis of the results recorded in the table: The results obtained through the application of the image naming test for children with cerebral palsy (from 08 to 12 years) turned out to be high, as the highest value obtained is 68/75, equivalent to 90.66%, while the lowest value obtained It is 43/75, which is equivalent to 57.33%.

As for the arithmetic mean of the sum of these results, it was estimated at 53.8, equivalent to 71.73%. Therefore, these results are high, which indicates that children with cerebral palsy can recognize the significance of images, which means that they do not suffer from a disorder at this level.

7- Presentation and analysis of the classification and semantic ranking test results:

7-1- View the results of the classification test and semantic ranking:

Table (09): represents the results of the classification and semantic ranking test

Cases	Marks	The ratios
First case	12\13	92.30
Second case	2\13	15.38
Third case	9\13	69.23
Fourth case	11\13	84.61
Fifth case	5\13	38.46
Arithmetic mean	7.8	59.99

7-2- Analysis of the results recorded in the table: The results obtained through the application of the classification repetition test and the semantic arrangement of children with cerebral palsy (from 08 to 12 years) turned out to be high, as the highest value obtained is 12/13, equivalent to 92.30%, while the lowest value obtained is 13/2, equivalent to 15.38%.

As for the arithmetic mean of the sum of these results, it was estimated at 7.8, equivalent to 59.99%, so these results are high, which indicates that children with cerebral palsy can recognize classification and semantic structure, which means that they do not suffer from a disorder at this level.

8- Viewing and analyzing the results of the sentence comprehension and functional linking test:

8-1- Presentation of the results of the test of comprehension and functional linking of sentences:

Table (10): represents the results of the test of comprehension and functional linking of sentences

Cases	Marks	The ratios
First case	30\30	100
Second case	30\30	100
Third case	30\30	100
Fourth case	20\30	66.66
Fifth case	19\30	63.33
Arithmetic mean	25.8	85.9

8-2- Analysis of the results recorded in the table: The results obtained through the application of the test of comprehension and functional linking of sentences for children with cerebral palsy (from 08 to 12 years) turned out to be high, as the highest value obtained is 30/30, which is equivalent to 100%, while the lowest value obtained is 19/30, equivalent to 63.33%.

As for the arithmetic mean of the total of these results, it was estimated at 25.8, equivalent to 85.9%. Therefore, these results are high, which indicates that children with cerebral palsy have abilities in understanding and functional linking of sentences, which means that they do not suffer from any disorder at this level.

Discuss the results in light of the hypotheses:

Through the results of the cases in the various items used in the test, and in the light of previous studies

And field studies, the researchers will try to discuss the results reached with each item to prove the validity and incorrectness of the research hypotheses.

1- Discussing the results related to the first hypothesis: By applying the item on the semantic repetition of words in cases of cerebral motor disability, it was found that the results are high, which was estimated at 82%, which denies the existence of a disorder in the semantic repetition of words, although their ability to pronounce the words was not It was not good, in addition to the presence of disturbances in some of the exits of the letters,

As the researchers mentioned previously in the theoretical aspect, children with cerebral palsy suffer from dyskinesia, which includes a distortion of voluntary movement in the face and pharynx, resulting in dysphagia, dysphagia, drooling, and dysarthria, which 70% of these children, especially in children who have floppy paralysis (and this is what was observed in Abeer), but the repetition of the word remains correct in general.

Thus, the hypothesis that states that "the child with cerebral motor paralysis suffers from a disorder in the semantic repetition of words" is not verified.

2- Discussion of the results related to the second hypothesis: The results of the semantic repetition of numbers were low and estimated at 26.66%, and this

indicates that this category suffers from difficulty in storing numbers with a long series in short-term memory and retrieving them correctly, and this is what was observed in the study of Drivel (2007) on Down children of the same age (08 to 11 years), where the researcher concluded through the results that the semantic memory of children with Down syndrome is characterized by the lack of organization of linguistic knowledge within their semantic memory, as well as enriching it with vocabulary and concepts with their meanings,

Thus, the hypothesis that states that "the child with cerebral motor paralysis suffers from a disorder in the semantic repetition of numbers" is verified;

3- Discussing the results related to the third hypothesis: After examining the analysis of the results for this item, it was noted that its results were very low compared to the previous items, estimated at 21.5%, and the reason in some cases is the inability to control the upper limbs (the inability to Knocking on the table with the finger), but the main reason in all cases in general, is due to the inability to absorb the number of beats and repeat them accurately, which indicates a disorder at the level of the rhythmic-semantic structure, as children with cerebral motor paralysis suffer from a problem in attention and perception, according to (Ghazal, 2008; Kardos, 1985; Lettad, 2006) and by using cognitive tests by Piaget (on which the researchers relied on the theoretical side), which showed that some typical structures of tangible cognitive processes were not acquired from the retention of number and size.

Thus, the hypothesis that states that "the child with cerebral motor paralysis suffers from a disorder in the rhythmic-semantic structure" is verified.

4- Discussing the results related to the fourth hypothesis: the results of the item "Sensation and phonological discrimination" showed low results by 30%. During the application of this item, children were unable to distinguish between similar words, as they suffered from a disorder of recognition (La Gnosie).

Thus, the hypothesis that states that "the child with cerebral motor paralysis suffers from a disorder of sensation and phonological discrimination" is verified.

5- Discussing the results related to the fifth hypothesis: By applying the vocabulary understanding item on cases of cerebral motor disability, it was found that the results obtained were high and estimated at 72.37%, meaning that this category does not suffer from a disorder in understanding vocabulary, so they were able to know all the cases members body, shapes, and colors, except for those forms that they have not seen before, and therefore are not found in their linguistic dictionary.

Thus, the hypothesis that states that "a child with cerebral motor paralysis suffers from a disorder in understanding vocabulary" is not verified.

6- Discussing the results related to the sixth hypothesis: the results for the item naming pictures were high, estimated at 71.73%, and this indicates that these cases enjoyed good support in the center, which means that their linguistic dictionary is rich in vocabulary and they can recall pictures and recognize their meanings normally. They do not suffer from a disorder at this level.

Thus, the hypothesis that states that "the child with cerebral motor paralysis suffers from a disorder at the level of image significance" is not verified.

7- Discussing the results related to the seventh hypothesis: After reviewing the results obtained in the classification and semantic arrangement item, it was noted

that it was high, estimated at 59.99%, but not a very high rate, as some cases did not have a good vocabulary balance, and we can attribute the reason to The environment in which the child lives, but the researchers cannot generalize the results to all children with cerebral palsy, i.e. they do not necessarily suffer from a disorder at this level.

Thus, the hypothesis that states that "the child with cerebral motor paralysis suffers from a disorder in recognizing classification and semantic arrangement" is not verified.

8. Discussing the results related to the eighth hypothesis: the results of the understanding and functional linking of items showed very high results, estimated at 85.9%, which means that these children have abilities to understand items and their implications, unlike the study conducted by (Debraso , 2004-2005), which was conducted by on children with intellectual disabilities, where I found that their semantic memory is weak in both general information and similitudes, general understanding, vocabulary, and arithmetic reasoning, and this is the opposite of what the researchers noticed in children with cerebral palsy.

Thus, the hypothesis that states that "the child with cerebral motor paralysis suffers from a disorder in understanding and functional linking of sentences" is not verified.

In the end, it is possible to answer the general hypothesis, which states that "a child with cerebral motor paralysis suffers from a disorder in semantic memory" as an unrealized hypothesis, and this is because most of the partial hypotheses were not fulfilled.

General conclusion:

Previous studies focused on dealing with cerebral motor impairment from various aspects. As (Ghazal, 2014-

2015), which the researchers sought help from earlier, it focused on the cognitive aspect (attention, perception, and memory in general) and did not address, in particular, the semantic memory. Children with cerebral motor disabilities are marginalized in previous studies (according to the aspiration of the two researchers),

The results of the researchers' theoretical and field study of their subject, represented by the use of the semantic memory scale of Saad Abdel Aziz, through which the researchers wanted to evaluate awareness, phonological semantic perception, visual, auditory, and verbal comprehension, and memory, among a sample of children with cerebral motor disabilities (CMI), numbering 5 cases. Their ages range from 8 to 12 years.

Through the results, the researchers concluded that the category of the cerebral motor handicapped, despite their normal or close to normal intelligence abilities, does not negate the existence of cognitive disorders suffered by the child with cerebral motor disability, which is as follows:

The semantic repetition of numbers, where the researchers noticed how difficult it was for the respondents to repeat the series of numbers, especially those that contain more than three digits or more,

The semantic rhythmic structure. In this item, they noticed how the respondents found it difficult to repeat the easy and complex rhythms with the same required tone.

Sense and phonological discrimination. Most of the respondents evaded this item, as they could not distinguish between words, so they resorted to answering spontaneously or not answering at all.

And the researchers can seek help from the study mentioned earlier (Letted 2006 & Kardos 1985), which showed the inability of children with cerebral motor disabilities to control all the typical structures of

sensorimotor intelligence and always resort to trial and error (tâtonnement) without anticipation. The two studies indicate that some typical structures of tangible cognitive processes do not gain from retaining numbers and size. This, according to the two studies, may result in difficulties in mathematical logic, and Kardos 1985 points out the inability of children with cerebral motor disabilities to mentally represent conversion processes, and this is what they noticed in their research.

As for the other aspects, their bikes were high, which were:

- semantic repetition of words.
- understand vocabulary.
- Recognize the significance of the images.
- Identify the classification and semantic arrangement.
- Comprehension and functional linking of sentences.

This is in contrast to Dabraso (2005-2004) with mental retardation, and Drevil (2007) with Down syndrome, and Yassin (2008-2009) with a child with psychosis, where their results were negative in the semantic memory test, so they had a weak memory In general information, general understanding, vocabulary, visual, auditory and verbal memory, and therefore the researchers can say that there is a difference between cerebral motor paralysis and mental retardation, Down syndrome and psychosis at the level of semantic memory, and this is in favor of cerebral palsy.

Finally, it can be said that the group of children with cerebral motor impairment (CMI) does not suffer from a disorder in semantic memory.

However, they suffer from deficiencies in short-term memory (and this is what they embraced in the semantic

repetition of numbers and the semantic rhythmic structure) and a problem in the phonological distinction between words, so they cannot judge by failing in only three items compared to eight, that it is a disorder in semantic memory

Based on the results, it can be said that the research achieved its objectives and was able to answer the questions through the hypotheses, which were discussed and interpreted, and it was concluded that the general hypothesis was not fulfilled, i.e.: children with cerebral motor paralysis do not suffer from a disorder in semantic memory.

Conclusion

It is obvious that the basis of any scientific project is ambiguity and questioning in a specific field that requires research in it, and this is what the researchers sought in this research is to search for the level of semantic memory in children with cerebral motor paralysis, as it is known that the latter (semantic memory) is a basic cognitive ability Especially since the subject of this research did not take enough space from previous scientific research (according to the knowledge of the two researchers), whether theoretical or even field, by local specialists and researchers in the field, and this is what motivated us to address this topic to delve deeper into it.

To verify the hypothesis, the researchers applied the semantic memory test of the researcher Saad Abdel Aziz on five cases from 08 to 12 years old, and the results denied the validity of the hypothesis so that children with motor disabilities who have two brains do not suffer from a disorder in semantic memory.

In the end, suggestions and recommendations that serve this category can be presented, whether at the scientific, educational, or practical level, so that researchers can be encouraged to do more scientific research on this category. (CMI) category only, but interest and aspiration

beyond its retrieval and how to employ it in intellectual development, especially trying to adapt tests and measures on children with cerebral motor disabilities from the Algerian environment,

As for the educational aspect, the researchers hope to reconsider the construction of educational curricula and the preparation of special educational programs for this group of society and the adaptation of learning methods and methods, taking into account the capabilities, shortcomings, and capabilities of the child with cerebral motor disabilities.

On the practical level, studying the possibility of opening centers specialized in this category only, with the availability of sponsorship in various specializations, and is comprehensive in Algeria and Egypt.

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