

## Parental Awareness Level of Cerebral Palsy and Their Commitment to Sports Rehabilitation Sessions

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### Abstract :

This study aimed to assess the level of cognitive awareness among parents of children with cerebral palsy, as well as their commitment to physical rehabilitation sessions. It also examined differences in both awareness and commitment based on selected variables, including educational level, monthly income, gender, and age group. Additionally, the study explored the relationship between cognitive awareness and commitment to physical rehabilitation sessions in light of these variables. The study population consisted of all parents of children with cerebral palsy registered at specialized centers for individuals with motor disabilities—Basma Center and Nabd Center—in Karak Governorate. The sample included 62 parents, comprising 40 males (65.5%) and 22 females (35.5%). A descriptive research design was employed, as it was deemed appropriate for the nature of the study. To collect data, the researcher developed a questionnaire composed of two sections. The first section assessed the level of cognitive awareness among parents of children with cerebral palsy and included 15 items. The second section evaluated parents' commitment to physical rehabilitation sessions and also consisted of 15 items. The collected data were analyzed using the Statistical Package for the Social Sciences (SPSS). The statistical methods applied included arithmetic means, standard deviations, Student's t-test, one-way ANOVA, and the Scheffé post hoc test.

The findings indicated that the levels of cognitive awareness and commitment to physical rehabilitation among parents were moderate overall. No significant differences were found between male and female parents in terms of cognitive awareness or commitment. However, significant differences were observed based on educational level, with parents who had higher levels of education demonstrating greater cognitive awareness and stronger commitment to rehabilitation sessions. Similarly, monthly income was found to influence both awareness and commitment, with higher-income parents showing higher levels in both areas. In contrast, no significant differences were identified across different age groups. Based on these findings, the study recommends strengthening collaboration with government institutions, such as the Ministry of Health, as well as university faculties specializing in physiotherapy and physical rehabilitation. These entities are encouraged to organize scientific lectures and awareness workshops to provide parents with essential knowledge and practical training. The study also highlights the importance of offering psychological support to parents of children with cerebral palsy and calls for coordination with relevant authorities to include physical rehabilitation services within free public health insurance programs.

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**Key Words:** Cognitive awareness, cerebral palsy, physical rehabilitation.

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## Introduction :

Movement disorders resulting from damage to brain function before, during, or in early childhood are classified as cerebral palsy, a condition that varies in severity and leads to multiple motor impairments, limiting a child's ability to control movement (Heller et al., 2014). It is considered the most common motor disability in childhood (Almutairi et al., 2023).

Cerebral palsy encompasses a diverse group of disorders affecting voluntary movement. This condition arises before, during, or within the first few years of life and significantly impacts children's development. It is estimated that approximately 18 million people worldwide live with cerebral palsy. In other words, one in every 500 newborns is affected, and roughly one child is born with the condition every hour (Khalaf & Al Onizat, 2023). The symptoms include a range of motor impairments, such as spasticity, muscle weakness, and difficulties with coordination, balance, and walking (Cooper et al., 2024). Additionally, children with cerebral palsy may experience challenges related to speech, learning, vision, and hearing, as confirmed by medical evidence from the World Health Organization and supported by various studies (Zuurmond et al., 2018).

Although cerebral palsy is a permanent condition with no cure, early intervention programs have proven effective in enhancing independence and improving the quality of life of affected children. These interventions are particularly beneficial when initiated early—between birth and five years of age—when neuroplasticity is at its peak. In many cases, therapeutic approaches such as surgery, medication, physical therapy, occupational therapy, and speech therapy contribute significantly to improving a child's functional abilities and overall well-being (Yeargin-Allsopp et al., 2008).

It is important to recognize that the severity of symptoms and the effectiveness of rehabilitation methods vary from one individual to another. Nevertheless, advances in medical care and ongoing treatment have enabled many children with cerebral palsy to lead productive and fulfilling lives, particularly when appropriate interventions are consistently applied (Agarwal et al., 2021). Within this context, family care and involvement play a critical role in improving both the cognitive and physical outcomes of children with cerebral palsy. Chiarello et al. (2010) emphasized that collaboration between families and sports or rehabilitation specialists is essential for maintaining consistent exercise performance, especially during early intervention programs. Similarly, other studies, such as Te Velde et al. (2019), have highlighted the importance of family engagement, particularly in the implementation of home-based exercise programs.

Physical rehabilitation is a key component in improving various aspects of life for individuals with cerebral palsy. It addresses motor deficits by enhancing fine and gross motor skills, improving neuromuscular coordination, reducing pain and muscle spasticity, and increasing joint flexibility. As a result, individuals are better able to perform daily activities—such as walking, eating, and dressing—with greater independence (Niyonsenga et al., 2024). From a psychological perspective, physical rehabilitation also contributes to increased self-confidence, improved morale, and an overall better quality of life. Therefore, active family involvement in collaboration with physical rehabilitation therapists is essential to sustain the effectiveness of intervention programs. This is particularly important in home-based settings, as emphasized by studies such as (Zuurmond et al., 2018).

Based on the above, this study aims to examine the level of cognitive awareness among parents of children with cerebral palsy and to analyze its relationship with their commitment to sports rehabilitation sessions. Achieving optimal rehabilitation outcomes requires continuous collaboration between parents and specialists, not only in rehabilitation centers but also within the home environment. Physical rehabilitation is a dynamic and ongoing process that depends on consistency and practice, making parental involvement essential. Parents must be equipped with the knowledge and skills necessary to effectively support their children's rehabilitation (Chiarello et al., 2010).

The researcher argues that improving the quality of life for individuals with cerebral palsy requires a comprehensive understanding of the condition, as well as the specific nature of each child's impairments. Accordingly, this study highlights the importance of assessing parental awareness of cerebral palsy. Cognitive awareness is considered a crucial factor in working with children affected by this condition, given its significant role in enhancing both their psychological and physical well-being.

### **Importance of the Study :**

1. This study provides a deeper understanding of the relationship between parents' cognitive awareness of cerebral palsy and their commitment to physical rehabilitation sessions. It aims to contribute to the development of more effective strategies to enhance the physical well-being of individuals with cerebral palsy.
2. The study also clarifies the role of key variables—such as educational level, monthly income, gender, and age—in influencing both the level of parental awareness and adherence to physical rehabilitation programs for individuals with cerebral palsy.

### **Study Objectives :**

The aim of this study is to:

1. Assess the level of cognitive awareness among parents of children with cerebral palsy.
2. Evaluate the level of parental commitment to sports rehabilitation programs for their children with cerebral palsy.
3. Examine differences in cognitive awareness and commitment to rehabilitation based on parents' demographic characteristics, including educational level, monthly income, gender, and age group.
4. Analyze the relationship between parental cognitive awareness and their commitment to sports rehabilitation, both overall and in relation to the study variables (educational level, monthly income, gender, and age group).

### **Research Questions :**

This study seeks to answer the following questions:

1. What is the level of cognitive awareness among parents of children with cerebral palsy?
2. What is the level of parental commitment to sports rehabilitation for their children with cerebral palsy?
3. Are there significant differences in parental cognitive awareness and commitment to sports rehabilitation based on demographic characteristics, including educational level, monthly income, gender, and age group?
4. What is the relationship between parents' cognitive awareness and their commitment to sports rehabilitation, both overall and across the study variables?

### **Study Variables :**

- **Independent Variable:** Level of cognitive awareness.
- **Dependent Variable:** Adherence to physical rehabilitation.

### **Operational Definitions :**

- Is such as planning, monitoring, decision-making, and the selection of appropriate strategies (Al-Jarrah & Obeidat, 2011). **Physical Rehabilitation:** A set of interventions aimed at improving functional performance and reducing disability in individuals with health conditions, particularly in relation to their interaction with the environment, as defined by the World Health Organization (WHO).

- **Cognitive Awareness:** An individual's awareness of their own cognitive processes and structures, and the ability to regulate these processes through the application of skill.

### **Areas of Study :**

**Spatial scope:** Jordan/Karak Governorate.  
**Human scope:** Parents of children with cerebral palsy.  
**Time scope:** September 30–October 28, 2024.

### Study procedures. Study methodology :

The researcher used a descriptive approach with its scientific stages and procedures because it corresponded to the nature and objectives of the study, as well as because the nature of the study relies primarily on the perspectives of parents, as it tracks reactions that arise during the care of children with cerebral palsy. Furthermore, studying the relationship between the level of cognitive awareness on a specific topic and the extent to which it is applied to other tasks related to this awareness necessitates the use of a descriptive approach, as it describes a real-life case, and the researcher does not delve into its details or aspects. The goal is solely to describe and understand the levels of the phenomenon being measured and the interrelations that occur within it.

**Study sample:** The study sample consisted of parents of children with cerebral palsy registered at specialized centers for people with motor disabilities (Basma Center and Nabd Center) in Karak Governorate.

**Research sample:** The study sample consisted of a purposive group of parents of children with cerebral palsy. The following table presents the study sample.

**Table 1. Demographic characteristics of participants (n=62)**

| Variable            | Category              | Number | Ratio |
|---------------------|-----------------------|--------|-------|
| Gender              | Males                 | 40     | 64.5  |
|                     | Females               | 22     | 35.5  |
|                     | Total                 | 62     | 100.0 |
| Age                 | 20 – 40               | 19     | 30.6  |
|                     | 41 – 60               | 29     | 46.8  |
|                     | More than 60          | 14     | 22.6  |
|                     | Total                 | 62     | 100.0 |
| Educational level   | High school or below  | 9      | 14.5  |
|                     | Bachelor's            | 34     | 54.8  |
|                     | Diploma               | 9      | 14.5  |
|                     | Postgraduate          | 10     | 16.1  |
|                     | Total                 | 62     | 100.0 |
| Family income level | Less than 500 dinars  | 5      | 8.1   |
|                     | 501 - 1000 dinars     | 31     | 50.0  |
|                     | 1000 - 2000 dinars    | 18     | 29.0  |
|                     | More than 2000 dinars | 8      | 12.9  |
|                     | Total                 | 62     | 100.0 |

For the first and second questions, a scale for assessing the arithmetic mean was developed. A three-level grading scale was used to describe the levels of achieved mean arithmetic values:

|             |                |
|-------------|----------------|
| 1.00 – 2.33 | Low Average    |
| 2.34 – 3.67 | Medium Average |
| 3.68 – 5.00 | High Average   |

### Data Collection Tool :

To collect the primary data for this study, the researcher utilized a structured questionnaire. The instrument was specifically developed for the purposes of the study and comprised two domains. The first domain assessed the level of cognitive awareness and included 18 items, while the second domain measured parents' commitment to sports rehabilitation activities and also consisted of 18 items. Responses were recorded using a five-point Likert scale to determine the level of agreement.

In developing the questionnaire, the researcher reviewed relevant literature and previous studies on the topic, including Te Velde et al. (2019), Chiarello et al. (2010), and Argent et al. (2018), to ensure that the items were grounded in established research.

## Psychometric Properties of the Instrument :

To ensure the quality of the measurement tool, the researcher examined its validity using the following methods:

### First: Validity :

#### 1. Face Validity:

To establish face validity, the questionnaire was presented to a panel of 10 experts and reviewers specializing in sports rehabilitation and special education from Mutah University. The instrument was initially submitted to evaluate the relevance and appropriateness of each item in relation to its respective domain, as well as its alignment with the intended research objectives. The experts provided feedback, including suggestions for improving the wording of items, as well as recommendations for deleting or replacing certain items. After incorporating these revisions, the questionnaire was resubmitted to the panel for further review. The experts agreed that most items were appropriate in terms of clarity, content, and representativeness. Consequently, the questionnaire was approved for use in collecting primary data.

#### 2. Construct Validity:

Construct validity was assessed by calculating the correlation coefficients between each item and the total score of its respective domain. This method evaluates the extent to which each item is associated with the construct it is intended to measure. Higher correlation coefficients indicate stronger relationships between items and their domains, reflecting better construct validity. The results of these analyses are presented in the following tables, which demonstrate the validity of the items within each of the two domains of the questionnaire.

The next section presents the results related to the validation of items in the cognitive awareness domain.

**Table 2. Constructive validity of the cognitive awareness domain items (n=15)**

| Paragraph number | Cognitive awareness |
|------------------|---------------------|
| 1                | .614**              |
| 2                | .725**              |
| 3                | .661**              |
| 4                | .622**              |
| 5                | .745**              |
| 6                | .738**              |
| 7                | .763**              |
| 8                | .777**              |
| 9                | .710**              |
| 10               | .704**              |
| 11               | .720**              |
| 12               | .736**              |
| 13               | .747**              |
| 14               | .787**              |
| 15               | .749**              |

Table 2 shows the results of the relationship between each paragraph of the cognitive awareness domain and the total score of this domain in what is known as construct validity. The result expresses the degree of the paragraph's connection to the domain of which it is assumed to be a part. It is known that the higher the correlation value, the stronger the paragraph's representation as a part of this domain and, consequently, its credibility in representing this domain. Upon examining the correlation values shown in the table, it becomes clear that the lowest correlation value reached was (0.614) between paragraph (1) and the total score of the cognitive awareness domain. It is also noted that all the values of the correlation coefficients that were reached were statistically significant at a significance level of 0.05 or less, which indicates the validity of the paragraphs of this domain in representing this domain.

Secondly, the validity of the paragraphs in the field of commitment to physical rehabilitation sessions.

**Table 3. Constructive validity of the items in the field of commitment to physical rehabilitation sessions (n=15)**

| Paragraph number | Adherence to physical rehabilitation sessions |
|------------------|-----------------------------------------------|
| 1                | .778**                                        |
| 2                | .786**                                        |
| 3                | .629**                                        |
| 4                | .648**                                        |
| 5                | .688**                                        |
| 6                | .736**                                        |
| 7                | .761**                                        |
| 8                | .749**                                        |
| 9                | .747**                                        |
| 10               | .792**                                        |
| 11               | .799**                                        |
| 12               | .694**                                        |
| 13               | .633**                                        |
| 14               | .762**                                        |
| 15               | .751**                                        |

Table 3 indicates the results of the relationship of each paragraph of the field of commitment to physical rehabilitation sessions with the total score for this field in what is known as construct validity. The result expresses the degree of the paragraph's connection to the field of which it is assumed to be a part. It is known that the higher the correlation value, the stronger the paragraph's representation as a part of this field and thus its credibility in representing this field. Upon examining the correlation values shown in the table, it becomes clear that the lowest correlation value reached was (0.629) between paragraph (3) and the total score for the field of commitment to physical rehabilitation sessions. It is also noted that all the values of the correlation coefficients that were reached were statistically significant at a significance level of 0.05 or less, which indicates the validity of the paragraphs of this field in representing this field.

Second: Stability: To verify the stability of the tool, the researcher used each of the following methods:

1- Method of applying the test and re-applying it for the purpose of verifying the stability of the study tool. The researcher used the method of applying the test and re-applying it. The questionnaire was presented to 15 individuals from the study community and outside its sample. Then the questionnaire was re-presented to them 10 days after the first application. The following table shows the stability values for the relationship between the first application and the second application. The following table:

**Table 4. Stability of the questionnaire fields using the test-and-retest method (n=15)**

| Domain                                        | Correlation coefficient |
|-----------------------------------------------|-------------------------|
| Cognitive awareness                           | 0.870                   |
| Adherence to physical rehabilitation sessions | 0.911                   |

Table 4 presents the correlation coefficient results between the first and second applications of the questionnaire fields. When analyzing the stability value for the cognitive awareness domain, it reached 0.870, while for the commitment to physical activity domain, reached 0.911. Clearly, these values are high and statistically significant at a significance level of 0.05 or lower, indicating the stability of the domains.

1- How to calculate the internal consistency coefficient Cronbach's alpha?

**Table 5. Stability of cognitive awareness items among parents of children with cerebral palsy and adherence to physical rehabilitation sessions using Cronbach's alpha method for internal consistency (n=15)**

| Questionnaire                                  | Number of paragraphs | Cronbach's value ( $\alpha$ ) |
|------------------------------------------------|----------------------|-------------------------------|
| Cognitive awareness among parents              | 15                   | 0.896                         |
| Commitment to physical rehabilitation sessions | 15                   | 0.842                         |

Table (4) presents the results of a study examining the stability of the questionnaire on cognitive awareness among parents of children with cerebral palsy and adherence to physical rehabilitation. The calculated stability value

reached 0.896 for the cognitive awareness among parent's variable and 0.842 for the adherence to physical rehabilitation variable. This value reflects a high degree of stability, as it exceeds the minimum threshold (0.70) for high stability values.

### Exploratory experiment :

The researcher conducted a pilot experiment on a sample of 15 individuals, both within and outside the study community. The goal of the experiment was to test and validate the scientific parameters of the test and measurement quality criteria (psychometric properties), as well as to verify the ease and accuracy of completing the questionnaire, as well as the method of its distribution and dissemination.

### Data collection procedures :

The researcher used an electronic method to distribute a questionnaire to study participants to collect data. The researcher entered the questionnaire into Google Forms and retrieved a link for compilation and publication. He then contacted the centers to obtain the phone numbers of parents of children with cerebral palsy. He sent them a link to the questionnaire, and they completed it according to the instructions provided. The researcher then extracted the raw data and submitted it for statistical analysis.

### Statistics Used :

The data were processed statistically using SPSS, the statistical package for education and psychology. The following statistical methods were used: arithmetic means, standard deviations, independent samples t-test, one-way analysis of variance, Pearson's correlation coefficient, and Cronbach's alpha.

### Presentation of Results :

**Question 1:** What is the level of cognitive awareness among parents of children with cerebral palsy?

To answer this question, I used arithmetic means and standard deviations, and the following table highlights these results.

**Table 6. Average levels of cognitive awareness among parents of children with cerebral palsy (n=62)**

| No | Paragraph                                                                                                                      | Arithmetic average | Standard deviation | Level  | Order |
|----|--------------------------------------------------------------------------------------------------------------------------------|--------------------|--------------------|--------|-------|
| 15 | I believe that cerebral palsy cannot be completely cured                                                                       | 3.10               | 0.14               | medium | 1     |
| 5  | I am aware of the impact of cerebral palsy on my child's overall health                                                        | 3.05               | 0.19               | medium | 2     |
| 3  | I know the common symptoms of cerebral palsy are.                                                                              | 3.03               | 0.20               | medium | 3     |
| 2  | I have knowledge about appropriate rehabilitation exercises for my child with cerebral palsy                                   | 3.00               | 0.94               | medium | 4     |
| 7  | Cerebral palsy can affect many aspects of a child's life, including movement, learning, and behavior                           | 2.98               | 0.21               | medium | 5     |
| 12 | I regularly seek out information that advances my knowledge about developments in cerebral palsy rehabilitation Cerebral Palsy | 2.97               | 0.12               | medium | 6     |
| 8  | Cerebral palsy is a permanent condition, but it can be improved through treatment and rehabilitation.                          | 2.95               | 0.14               | medium | 7     |
| 1  | I understand the impact of rehabilitation exercises on improving the condition of my child with cerebral palsy                 | 2.94               | 0.27               | medium | 8     |
| 4  | I know what types of emotional and psychological support my child with cerebral palsy may need                                 | 2.94               | 0.10               | medium | 8     |
| 14 | I find reliable information about cerebral palsy and how to care for a child                                                   | 2.94               | 0.24               | medium | 8     |
| 9  | Every child with cerebral palsy is unique, and his or her needs may differ from those of other children                        | 2.92               | 0.11               | medium | 11    |

|    |                                                                                                                             |      |      |        |    |
|----|-----------------------------------------------------------------------------------------------------------------------------|------|------|--------|----|
| 11 | Good cognitive awareness about cerebral palsy contributes to improving the quality of life for my child with cerebral palsy | 2.90 | 0.18 | medium | 12 |
| 6  | Cerebral palsy is a neurological condition that causes difficulty with movement and coordination                            | 2.89 | 0.15 | medium | 13 |
| 13 | I participate in discussions with the medical team about the health benefits of rehabilitation exercises for my child       | 2.81 | 0.17 | medium | 14 |
| 10 | There are many resources available to help parents care for and rehabilitate their children with cerebral palsy             | 2.76 | 0.29 | medium | 15 |
|    | Cognitive awareness among parents of children with cerebral palsy                                                           | 2.94 | 0.74 | medium |    |

Classification of arithmetic mean values (1 - 2.33: low, 2.34 - 3.67: medium, 3.68 - 5.00: high)

The table shows the average values of the paragraphs of the average levels of cognitive awareness among parents of children with cerebral palsy. By reviewing the arithmetic mean values of the paragraphs, it became clear that paragraph No.15, which states "I believe that cerebral palsy cannot be completely cured," achieved the highest value among the arithmetic averages, as its value reached 3.10. It was followed in second place by paragraph No.5, which indicates that "I am aware of the impact of cerebral palsy on my child's overall health," which was achieved with an arithmetic mean of 3.05. The results showed that paragraph No. 13, which shows that "I participate in discussions with the medical team about the health benefits of rehabilitation exercises for my child," came in the penultimate place, as it was noted that it was achieved with an arithmetic mean of 2.81. As for the paragraph that came in the last position among the paragraph, it was achieved through paragraph number 10, which indicates that the guardian knows that "there are many resources available to help parents care for and rehabilitate their children with cerebral palsy." This paragraph was embodied in an arithmetic mean value of 2.76.

It is noted that the arithmetic mean value of the total score representing all cognitive awareness paragraphs reached 2.94, and this value is classified as representing an average level of cognitive awareness according to the classification scale adopted in this study.

**Question 2:** What is the level of commitment of parents to sports rehabilitation for their children with cerebral palsy? To answer this question, I used the mean and standard deviation. The results are presented in the table below.

**Table 7. Average level of commitment to physical rehabilitation among parents of children with cerebral palsy (n=62)**

| No | Paragraph                                                                                                                      | Arithmetic average | Standard deviation | Level  | Order |
|----|--------------------------------------------------------------------------------------------------------------------------------|--------------------|--------------------|--------|-------|
| 3  | Facing difficulties in adhering to the rehabilitation program                                                                  | 3.21               | 1.10               | medium | 1     |
| 1  | I regularly attend the physical rehabilitation sessions recommended for my child with cerebral palsy.                          | 3.11               | 1.06               | medium | 2     |
| 5  | I believe that commitment to rehabilitation sessions helps to enhance progress and improvement in children with cerebral palsy | 3.10               | 1.18               | medium | 3     |
| 12 | I believe that physical rehabilitation sessions should become part of my child's daily routine.                                | 3.03               | 1.10               | medium | 4     |
| 13 | I believe that commitment to physical therapy sessions can improve many aspects of child's life                                | 2.97               | 1.13               | medium | 5     |
| 4  | I find it difficult to motivate my child to actively participate in sports rehabilitation sessions                             | 2.95               | 1.08               | medium | 6     |
| 2  | I believe that commitment to rehabilitation sessions contributes to improving my child's condition and quality of life         | 2.94               | 1.07               | medium | 7     |
| 11 | I try to compensate for any activities my child misses                                                                         | 2.85               | 1.01               | medium | 8     |
| 14 | I understand the importance of continuing to attend physical rehabilitation sessions for my child to achieve desired results   | 2.85               | 1.04               | medium | 9     |
| 7  | I set up a regular schedule for my child to attend physical rehabilitation sessions                                            | 2.84               | 1.04               | medium | 9     |
| 9  | I inform the rehabilitation center in advance if my child cannot attend                                                        | 2.82               | 1.08               | medium | 11    |



|    |                                                                                                                       |      |      |        |    |
|----|-----------------------------------------------------------------------------------------------------------------------|------|------|--------|----|
| 10 | I am looking for alternative solutions if my child cannot attend a specific session                                   | 2.82 | 1.14 | medium | 12 |
| 6  | I feel adequate support from health authorities and specialists to help me adhere to physical rehabilitation sessions | 2.81 | 1.10 | medium | 12 |
| 15 | I adhere to the instructions of qualified doctors regarding my child's special physical rehabilitation sessions       | 2.76 | 1.18 | medium | 14 |
| 8  | I am following my child's physical rehabilitation schedule                                                            | 2.74 | 1.05 | medium | 15 |
|    | Commitment to physical rehabilitation sessions for parents of children with cerebral palsy                            | 2.92 | 0.61 | medium |    |

Classification of arithmetic mean values (1 - 2.33: low, 2.34 - 3.67: medium, 3.68 - 5.00: high)

Table 6 presents the average levels of paragraphs of commitment to physical rehabilitation sessions among parents of children with cerebral palsy. By reviewing the arithmetic mean values of the paragraphs, it became clear that paragraph No. 3, which refers to "Facing difficulties in adhering to the rehabilitation program," achieved the highest value among the arithmetic averages, as its value reached 3.21. It was followed in second place by paragraph No.1, which explains that the guardian "Regularly attend the physical rehabilitation sessions recommended for my child with cerebral palsy.," which was achieved with an arithmetic mean of 3.11. The results showed that paragraph No.15, which shows that the guardian adheres to "the instructions of qualified doctors regarding the physical rehabilitation sessions for my child," was ranked before last, as it is noted that it was achieved with an arithmetic mean of 2.76. As for the paragraph that was placed in the last position among the paragraphs, it was achieved through paragraph No. 8, which indicates that the guardian is committed "excellently to the time of my child's attendance at physical rehabilitation sessions." This paragraph was embodied by an arithmetic mean value of 2.74. It is noted that the value of the arithmetic mean for the total score representing all paragraphs of commitment to physical rehabilitation sessions among parents of children with cerebral palsy reached 2.92, and this value corresponds to an average level according to the classification scale adopted in this research.

**Question 3:** Are there differences in parents' cognitive awareness and commitment to sports rehabilitation according to demographic variables (educational level, monthly income, gender, and age group)?

First: Differences according to the parent's gender variable

To answer this question, an independent samples t-test was used. The following table shows the results of this test.

**Table 8. Significance of differences in the averages of cognitive awareness and commitment to physical rehabilitation sessions among parents of children.**

**People with cerebral palsy according to the gender of the parent (n=62)**

| Variable                                       | Gender | Quantity | Arithmetic average | Standard Deviation | t value | Statistics | Result                |
|------------------------------------------------|--------|----------|--------------------|--------------------|---------|------------|-----------------------|
| Cognitive Awareness                            | Male   | 40       | 3.04               | 0.75               | 1.356   | 0.180      | Insignificant         |
|                                                | Female | 22       | 2.77               | 0.71               |         |            |                       |
| Commitment to Physical Rehabilitation Sessions | Male   | 40       | 3.05               | 0.63               | 2.280   | 0.029      | Significant for males |
|                                                | Female | 22       | 2.69               | 0.51               |         |            |                       |

Table 8 shows the results of the t-test for differences to investigate the significance and importance of the differences in the means of cognitive awareness and commitment to physical rehabilitation sessions among parents of children with cerebral palsy according to the gender of the parent.

By reviewing the significance level value of the difference in the means of the two genders, it is clear that it reached 0.180 for cognitive awareness. By comparing this result with the value 0.05, it is noted that it was greater than 0.05, which indicates that the difference in the means is considered unimportant and not statistically significant in this variable. As for the value of the calculated significance level for the variable of commitment to physical rehabilitation sessions, it was determined at the value 0.025. By comparing this result with the value 0.05, it is noted that it was less than 0.05, which indicates that the difference in the means is considered important and statistically significant, such that the significance of the difference in the means was in the direction of the male parents, who expressed their commitment with an arithmetic mean 3.05, that greater than of the females (2.69).

**Second: Differences according to the educational level variable**

One-way analysis of variance was used to test the significance of the differences in means between different levels of education from a statistical point of view, and the following tables show the results of these differences.

**Table 9. Averages of cognitive awareness and commitment to physical rehabilitation sessions among parents of children with cerebral palsy, distributed according to the educational level variable (n=62)**

| Variable                                       | Educational level                | Quantity | Arithmetic average | Standard Deviation |
|------------------------------------------------|----------------------------------|----------|--------------------|--------------------|
| Cognitive Awareness                            | High (secondary) school or below | 9        | 2.75               | 0.65               |
|                                                | Bachelor's                       | 34       | 2.61               | 0.46               |
|                                                | Diploma                          | 9        | 3.12               | 0.69               |
|                                                | Postgraduate studies             | 10       | 4.11               | 0.40               |
| Commitment to Physical Rehabilitation Sessions | High (secondary) school or below | 9        | 2.79               | 0.71               |
|                                                | Bachelor's                       | 34       | 2.65               | 0.25               |
|                                                | Diploma                          | 9        | 2.97               | 0.61               |
|                                                | Postgraduate studies             | 10       | 3.92               | 0.32               |

The table shows the average values of cognitive awareness and commitment to physical rehabilitation sessions among parents of children with cerebral palsy, distributed according to the educational level variable. When reviewing the values of these averages among the educational level categories, it becomes clear that the values of these averages were different and unequal. To determine the importance and substance of the difference in the values of the arithmetic averages, a one-way factorial analysis of variance (one-way ANOVA) was applied. The following table shows the results of this analysis.

**Table 10. Results of one-way analysis of variance for cognitive awareness and commitment to sports rehabilitation sessions according to educational level (n=62)**

| Variable                                       | Source of variance | Sum of squares | Degrees of freedom | Average of squares | F value | Significance level |
|------------------------------------------------|--------------------|----------------|--------------------|--------------------|---------|--------------------|
| Cognitive awareness                            | Educational Level  | 18.180         | 3                  | 6.060              | 22.673  | .000               |
|                                                | Error              | 15.502         | 58                 | .267               |         |                    |
|                                                | Total              | 33.682         | 61                 |                    |         |                    |
| Commitment to physical rehabilitation sessions | Educational Level  | 12.683         | 3                  | 4.228              | 24.499  | .000               |

Table 10 shows the results of a one-way ANOVA examining differences in cognitive awareness and commitment to physical therapy sessions among parents of children with cerebral palsy, based on the educational level variable. The significance level of the difference in means between the four educational levels was found to be (0.000) for the cognitive awareness variable and also 0.000 for the commitment to physical therapy sessions variable. Comparing these values to the value of 0.05, it is observed that the values listed in the table were less than 0.05, indicating that the differences in means are statistically significant. The Scheffe test was used to identify categories of educational level with statistically significant differences in mean values. These differences are presented in the following table.

**Table 11. Results of the Scheffe test to identify the categories of educational level variable whose means differ statistically (n=62)**

| Variable            | Arithmetic average | Educational level    | Bachelor | Diploma | Postgraduate studies |
|---------------------|--------------------|----------------------|----------|---------|----------------------|
| Cognitive Awareness | 2.75               | High school or below | 0.910    | 0.518   | 0.000*               |
|                     | 2.61               | Bachelor             |          | 0.083   | 0.000*               |
|                     | 3.12               | Diploma              |          |         | 0.001*               |
|                     | 4.11               | Postgraduate studies |          |         |                      |

|                |      |                      |       |       |        |
|----------------|------|----------------------|-------|-------|--------|
| Commitment to  | 2.79 | High school or below | 0.858 | 0.827 | 0.000* |
| Physical       | 2.65 | Bachelor             |       | 0.858 | 0.248  |
| Rehabilitation | 2.97 | Diploma              |       |       | 0.000* |
| Sessions       | 3.92 | Postgraduate studies |       |       |        |

Table 10 shows the results of the Scheffe test to identify the categories of the educational level variable whose means differ statistically. When reviewing the significance levels of the differences in the arithmetic means between each two educational levels, it was observed that the significance levels were less than 0.05 in some comparisons, so these differences can be summarized as follows:

#### - In the cognitive awareness variable

1. Between the postgraduate level and the general secondary level and below, such that the differences were towards the postgraduate level, which had the largest S-level (4.11) compared to the general secondary level and below (2.75).
2. Between the postgraduate level and the Bachelor degree, the differences were towards the postgraduate level, which had the largest S-level (4.11) compared to the Bachelor degree (2.61).

1. Between the postgraduate level and the diploma level, with the differences being towards the postgraduate level, which had the largest S-level (4.11) compared to the diploma level (3.12).

It was noted that the significance levels of differences in the means of other levels were above 0.05, which means that these differences at other levels of education were not significant or meaningful.

#### - In the variable of commitment to physical rehabilitation sessions

1. Between the postgraduate level and the general secondary level and below, such that the differences were towards the postgraduate level, which had the largest S-level (3.92) compared to the general secondary level and below (2.65).
2. Between the postgraduate level and the diploma level, with the differences being towards the postgraduate level, which had the largest S-level (3.92) compared to the diploma level (2.97).

It was observed that the significance levels of the differences in the means of the other levels were greater than 0.05, which means that these differences in the other educational levels were not substantial or significant.

### Third: Differences according to the monthly income variable

One-way analysis of variance was used to test the statistical significance of differences in means between different levels of monthly income, and the following tables illustrate the results of these differences.

**Table 12. Average levels of cognitive awareness and commitment to physical rehabilitation sessions among parents of children with cerebral palsy, distributed according to the monthly income variable (n=62)**

| Variable                              | Monthly Income      | Number | Arithmetic average | Standard Deviation |
|---------------------------------------|---------------------|--------|--------------------|--------------------|
| Cognitive Awareness                   | 500 JOD or less     | 18     | 2.42               | 0.48               |
|                                       | 501 – 1,000 JOD     | 31     | 2.75               | 0.36               |
|                                       | 1,001 – 2,000 JOD   | 5      | 4.20               | 0.21               |
|                                       | More than 2,000 JOD | 8      | 4.10               | 0.36               |
| Commitment to Rehabilitation Sessions | 500 JOD or less     | 18     | 2.47               | 0.23               |
|                                       | 501 – 1,000 JOD     | 31     | 2.77               | 0.35               |
|                                       | 1,001 – 2,000 JOD   | 5      | 3.96               | 0.19Physical       |
|                                       | More than 2,000 JOD | 8      | 3.87               | 0.40               |

Table 12 shows the mean values of cognitive awareness and commitment to physical rehabilitation sessions among parents of children with cerebral palsy, distributed according to the monthly income variable. Upon reviewing these mean values across different income brackets, it becomes clear that the values were different and unequal. To determine the significance of the difference in the mean values, a one-way ANOVA was applied. The following table shows the results of this analysis.

**Table 13. One-way ANOVA to investigate the differences in cognitive awareness and commitment to physical rehabilitation among parents of children with cerebral palsy according to monthly income (n=62)**

| Variable                                       | Source of Variance | Sum of Squares | Degrees of Freedom | Average of squares | F Value | Significance Level |
|------------------------------------------------|--------------------|----------------|--------------------|--------------------|---------|--------------------|
| Cognitive Awareness                            | Monthly Income     | 24.779         | 3                  | 8.260              | 53.813  | .000               |
|                                                | Error              | 8.902          | 58                 | .153               |         |                    |
|                                                | Total              | 33.682         | 61                 |                    |         |                    |
| Commitment to Physical Rehabilitation Sessions | Monthly Income     | 16.955         | 3                  | 5.652              | 57.141  | .000               |
|                                                | Error              | 5.737          | 58                 | .099               |         |                    |
|                                                | Total              | 22.692         | 61                 | 8.260              |         |                    |

Table 13 shows the results of a one-way ANOVA examining differences in cognitive awareness and commitment to physical therapy sessions among parents of children with cerebral palsy, based on the monthly income variable. The significance level of the difference in means between the four educational levels was found to be (0.000) for the cognitive awareness variable and also (0.000) for the commitment to physical therapy sessions variable. Comparing these values to the value of (0.05), it is observed that the values listed in the table were less than 0.05, indicating that the differences in means are statistically significant.

To identify the monthly income brackets with statistically significant differences in their means, the Scheffé test was used. The following table shows these differences.

**Table 14. Results of the Scheffe test to identify categories of monthly income variable whose averages differ statistically (n=62)**

| Variable                                       | Arithmetic Average | Monthly Income      | 501 - 1,000 Dinars | 1,001 - 2,000 JOD | More than 2,000 Dinars |
|------------------------------------------------|--------------------|---------------------|--------------------|-------------------|------------------------|
| Cognitive Awareness                            | 2.42               | 500 JOD or less     | 0.049              | 0.000             | 0.000                  |
|                                                | 2.75               | 501 – 1,000 JOD     |                    | 0.000             | 0.000                  |
|                                                | 4.20               | 1,001 – 2,000 JOD   |                    |                   | 0.977                  |
|                                                | 4.10               | More than 2,000 JOD |                    |                   |                        |
| Commitment to Physical Rehabilitation Sessions | 2.47               | 500 JOD or less     | 0.019              | 0.000             | 0.000                  |
|                                                | 2.77               | 501 – 1,000 JOD     |                    | 0.000             | 0.000                  |
|                                                | 3.96               | 1,001 – 2,000 JOD   |                    |                   | 0.965                  |
|                                                | 3.87               | More than 2,000 JOD |                    |                   |                        |

Table 14 shows the results of the Scheffe test to determine the categories of the monthly income variable whose averages differ statistically. When reviewing the values of the significance levels of the differences in the arithmetic averages between each two levels of income, it was noted that the values of the significance levels were less than 0.05 in some comparisons, so that these differences can be summarized as follows:

In the cognitive awareness variable, commitment to physical rehabilitation sessions between every two income levels (except for levels (1001-2000) and (more than 2000) dinars), the direction of the significance of the difference between the two means is towards the income category with the largest arithmetic mean. As an example of these comparisons in the variable of commitment to physical rehabilitation sessions, the income category ((501-1000) dinars) differs significantly and statistically significantly with the income level (1001-2000) dinars, such that the significance of the difference between these two income levels was towards the income level ((1001-2000) dinars, which achieved a greater arithmetic mean of 3.96 compared to the income level of the category (501-1000) dinars, which reached an average of 2.77.

#### Fourth: Differences according to the age variable

To test the statistical significance of the differences in means between different age levels, a one-way factorial analysis of variance was used, and the following tables show the results of these differences.

**Table 15. Average levels of cognitive awareness and commitment to physical rehabilitation sessions among parents of children with cerebral palsy, distributed according to the age variable (n=62)**

| Variable                                       | Age          | Number | Arithmetic average | Standard Deviation |
|------------------------------------------------|--------------|--------|--------------------|--------------------|
| Cognitive Awareness                            | 40-20        | 19     | 2,71               | 0,85               |
|                                                | 60-41        | 29     | 3.05               | 0,69               |
|                                                | More than 60 | 14     | 3.05               | 0,69               |
| Commitment to Physical Rehabilitation Sessions | 40-20        | 19     | 2,83               | 0,61               |
|                                                | 60-41        | 29     | 3.02               | 0,60               |
|                                                | More than 60 | 14     | 2,83               | 0,64               |

Table 15 shows the mean values of cognitive awareness and commitment to physical rehabilitation sessions among parents of children with cerebral palsy, distributed according to the age variable. Upon reviewing these mean values across age groups, it becomes clear that they were different and unequal. To determine the significance of the difference in the arithmetic mean values, a one-way ANOVA was applied. The following table shows the results of this analysis.

**Table 16. One-way ANOVA to investigate differences in cognitive awareness and commitment to physical rehabilitation sessions among parents of children with cerebral palsy according to the age variable (n=62)**

| Variable                                       | Source of Variance | Sum of Squares | Degrees of Freedom | Average of squares | F Value | Significance Level |
|------------------------------------------------|--------------------|----------------|--------------------|--------------------|---------|--------------------|
| Cognitive Awareness                            | Age                | 1.472          | 2                  | .736               | 1.348   | .268               |
|                                                | Error              | 32.210         | 59                 | .546               |         |                    |
|                                                | Total              | 33.682         | 61                 |                    |         |                    |
| Commitment to Physical Rehabilitation Sessions | Age                | .573           | 2                  | .287               | .764    | .470               |
|                                                | Error              | 22.119         | 59                 | .375               |         |                    |
|                                                | Total              | 22.692         | 61                 |                    |         |                    |

Table 16 shows the results of the one-way ANOVA to investigate differences in cognitive awareness and commitment to physical rehabilitation sessions among parents of children with cerebral palsy according to the age variable. Reviewing the significance level of the difference in means between the four educational levels, it is found that it reached (0.268) for the cognitive awareness variable and reached the value of (0.470) for the commitment to physical rehabilitation sessions variable. Comparing these values with the value of (0.05), it is noted that the values calculated in the table were greater than 0.05, which indicates that the differences in means are not significant and are not statistically significant.

**Question 4:** What is the relationship between parents' cognitive awareness and their commitment to sports training overall and across different parameters?

To answer this question, Pearson's correlation coefficient was used, and the following table shows the results of this relationship.

**Table 17. The relationship of cognitive awareness to commitment to physical rehabilitation sessions among parents of children with cerebral palsy (n=62)**

| Both sides of the relationship                             | Value of the relationship | Nature of the relationship | Statistical significance | Result   |
|------------------------------------------------------------|---------------------------|----------------------------|--------------------------|----------|
| Cognitive - Commitment to physical rehabilitation sessions | 0.811                     | Direct                     | 0.000                    | Function |

Table 17 shows the relationship between cognitive awareness and commitment to physical therapy sessions among parents of children with cerebral palsy. The value of this relationship is (0.811), indicating a direct correlation. This means that increased cognitive awareness is positively associated with commitment to therapy sessions (i.e., increased awareness leads to increased commitment, and conversely, decreased awareness leads to decreased commitment). This relationship is considered strong. Furthermore, the relationship between the two variables is statistically significant, meaning that each variable is strongly related to the other. The significance level value shown in the last column of the table is (0.000), which is less than 0.05.

### Discussion :

The results of the data analysis indicated that the level of cognitive awareness among parents of children with cerebral palsy was moderate. This finding may be explained by the substantial life pressures associated with raising a child with cerebral palsy, including increased financial and psychological burdens, as well as feelings of inadequacy or guilt. Such challenges may lead to uncertainty when selecting the most appropriate care and rehabilitation pathways. Moreover, the complexity of cerebral palsy as a medical condition may contribute to social isolation among parents. This interpretation is consistent with the findings of Niyonsenga et al. (2024).

The researcher further attributes this moderate level of awareness to parents' efforts to seek guidance from multiple specialists out of concern for their children's physical and psychological well-being. While this reflects a positive intention, it may also result in confusion due to exposure to differing opinions and treatment approaches. Consequently, parents may experience difficulty adhering consistently to professional recommendations, which can sometimes lead to doubt, reduced trust, or reluctance to communicate openly with healthcare providers. Additionally, factors such as limited health literacy, challenges in communicating with specialists, restricted access to reliable information, competing life responsibilities, and limited social engagement may contribute to this outcome (Essery et al., 2016). This finding aligns with previous studies, including Mei et al. (2015) and Jack et al. (2010), which also reported moderate levels of parental awareness.

Similarly, the level of parental commitment to physical rehabilitation sessions was found to be moderate. This may be due to the challenges families face in maintaining long-term adherence to rehabilitation programs, which are often continuous and demanding in cases of cerebral palsy (Anaby et al., 2017). Such programs can impose significant financial costs and psychological strain, particularly in the context of difficult socioeconomic conditions. The impact of psychological stress on parents has been highlighted in studies such as Beckers et al. (2018) and Niyonsenga et al. (2024).

The results also revealed no significant differences in cognitive awareness or commitment to rehabilitation sessions based on gender or age group. However, significant differences were observed with respect to educational level and monthly income. Parents with higher levels of education and higher incomes demonstrated greater awareness and stronger commitment to rehabilitation programs. This may be attributed to their increased ability to bear the financial costs associated with ongoing rehabilitation, as well as their greater access to information and resources. Additionally, the relatively higher proportion of parents with postgraduate education in the sample may have contributed to the overall higher levels of commitment observed within this group.

These findings are consistent with Argent et al. (2018), which reported higher rates of non-adherence among families with limited financial resources. Furthermore, higher educational attainment is often associated with greater awareness and knowledge, influenced by broader cultural and societal factors. Individuals with advanced academic qualifications are more likely to recognize the importance of consistent physical rehabilitation for children with disabilities, as supported by Niyonsenga et al. (2024).

The absence of differences based on gender or age may be explained by the shared sense of responsibility among parents, regardless of these characteristics. Emotional bonds, parental instincts, and moral obligations toward their children appear to play a central role in shaping both awareness and commitment.

Finally, the study found a positive relationship between cognitive awareness and adherence to rehabilitation sessions. In other words, higher levels of awareness were associated with greater commitment, whereas lower awareness corresponded with reduced adherence. This finding is in agreement with the results reported by Mei et al. (2015).

### **Conclusions :**

1. Physical therapy sessions play a role in improving the functional and physical condition of children with cerebral palsy.
2. Parental commitment to rehabilitation sessions plays a vital role in improving children's physical condition.
3. Parents' awareness of the importance of physical therapy motivates them to consistently attend physical therapy sessions.
4. The educational level of parents plays a vital role in their commitment to and consistency in attending rehabilitation sessions.

### **Recommendations :**

1. Contacting government agencies, such as the Ministry of Health and relevant university colleges specializing in physiotherapy and physical rehabilitation, **to provide** scientific lectures and awareness seminars to guide and train parents of children with cerebral palsy.
2. Contacting relevant authorities to include physical rehabilitation within the free government health insurance.
3. Informing parents of the necessity and importance of early intervention in physical rehabilitation for their children with cerebral palsy.

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## مستوى وعي الوالدين بالشلل الدماغي والتزامهم بإعادة التأهيل الرياضي

### الملخص :

هدفت هذه الدراسة التعرف على مستوى الوعي المعرفي ومستوى الالتزام بجلسات التأهيل البدني والفروق في مستوى الوعي المعرفي والالتزام بجلسات التأهيل لدى أولياء أمور الأطفال المصابين بالشلل الدماغي تبعاً لمتغيرات الدراسة (المستوى التعليمي، الدخل الشهري، النوع الاجتماعي، والفئة العمرية والعلاقة بين مستوى الوعي المعرفي والالتزام بجلسات التأهيل البدني تبعاً لمتغيرات الدراسة و تكون مجتمع الدراسة من جميع أولياء أمور الأطفال المصابين بالشلل الدماغي والمسجلين في المراكز الخاصة لذوي الإعاقات الحركية (مركز بسمة و مركز نبض) في محافظة الكرك وعددهم (62) ولي أمر، من الذكور (40) وبنسبة مئوية بلغت (65.5) ومن الإناث (22) وبنسبة مئوية بلغت (35.5) إذ استخدمت الدراسة المنهج الوصفي لمناسبتها لطبيعتها حيث قام الباحث بتصميم استبيان مكون من محورين المحور الأول حول مستوى الوعي المعرفي لدى أولياء أمور الأطفال المصابين بالشلل الدماغي ومكون من (15) فقرة والمحور الثاني حول الالتزام بجلسات التأهيل البدني لدى أولياء أمور الأطفال المصابين بالشلل الدماغي ومكون أيضاً من (15) فقرة وتم معالجة البيانات الخام عن طريق برنامج رزمة الاحصاء في التربة وعلم النفس (spss) حيث تم استخدام الوسائل الاحصائية التالية: المتوسطات الحسابية والانحرافات المعيارية واختبار ت وتحليل التباين الاحادي واختبار SHEFFE وقد اظهرت النتائج بأن مستوى الوعي المعرفي والالتزام بجلسات التأهيل البدني لدى أولياء الأمور حسب النوع الاجتماعي كان متوسطاً لولي الأمر بحيث لا يوجد فرق في الوعي المعرفي بين أولياء الأمور الذكور والإناث. أما من ناحية المستوى التعليمي فيوجد فرق في الوعي المعرفي والالتزام بجلسات التأهيل البدني بين مستويات التعليم المختلفة. فأولياء الأمور ذوو المستوى التعليمي العالي لديهم وعي معرفي والتزام أعلى. وظهرت النتائج بوجود فرق في الوعي المعرفي والالتزام بجلسات التأهيل البدني حسب متغير الدخل الشهري فأولياء الأمور ذوو الدخل الأعلى لديهم وعي معرفي والتزام أعلى. كما وظهرت النتائج بعدم وجود فرق في الوعي المعرفي والالتزام بجلسات التأهيل البدني بين الفئات العمرية المختلفة حسب متغير العمر. ومن خلال النتائج أوصى الباحث مخاطبة الجهات الحكومية كوزارة الصحة والكلية الجامعية المعنية بتخصصي العلاج الطبيعي والتأهيل البدني لأعضاء محاضرات علمية وندوات توعوية للتوعية والتدريب اللازم لأولياء أمور المصابين بالشلل الدماغي والعمل على تقديم الدعم النفسي لأولياء أمور المصابين بالشلل الدماغي ومخاطبة الجهات المعنية بشمول التأهيل البدني ضمن التأمين الصحي الحكومي المجاني.

**الكلمات المفتاحية:** الوعي المعرفي، الشلل الدماغي، التأهيل البدني.