Psychological Stress Level among Mothers of Children with Cerebral Palsy and Their Coping Strategies: A Study on a Sample of Mothers of Children with Cerebral Palsy in Oum El Bouaghi Province

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Abstract:

The current study aimed to explore the level of psychological stress among mothers of children with cerebral palsy and to examine the statistically significant differences in the level of psychological stress that can be attributed to the child's gender, the mother's age, and the type of cerebral palsy the child has. It also seeks to identify the most frequently used coping strategy by the mothers of children with cerebral palsy. The researchers used the Psychological Stress Scale (Al-Sartawi & Al-Shakhs, 1998) adopted by Sabah (2016) and the Coping Strategies Scale (Folkman & Lazarus, 1980). The sample of the study consists of a purposive sample of 52 mothers of children with cerebral palsy in Oum El Bouaghi province. Their age ranged from 26 years and 11 months to 53 years and 11 months with average age of 39.76 and Standard Deviation of 7.98. The results of the study indicated that there was moderate level of psychological stress among mothers of children with cerebral palsy. Moreover, the results indicated that there were no statistically significant differences in the level of psychological stress among mothers of children with cerebral palsy that could be attributed to the type of cerebral palsy, the mother's age and the child's gender. Lastly, the results clarify that the problem-solving strategy is the most used coping strategy by mothers of children with cerebral palsy. In conclusion mothers of children with cerebral palsy need to receive counseling programs and support to enhance their psychological resilience.

Keywords: Psychological stress, Coping strategies, Cerebral palsy, Handicap, Motherhood.

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1. Introduction

Having a child with a disability in the family has numerous negative effects on every family member psychologically, socially, and emotionally. Parents of children with disabilities often experience a range of negative reactions, including shock, despair, sadness, denial, and guilt, which can sometimes develop into depression. They also face significant psychological stress due to the burdens of caregiving, a lack of community support, and the challenges of rehabilitation and treatment.

The birth of a child with cerebral palsy in the family can be a source of significant disappointment and stress. Numerous studies in this field have revealed the high level of stress experienced by parents of children born with cerebral palsy. These high stress levels are linked to the medical and social services parents must access while struggling to raise a child with special needs. Mothers of children with cerebral palsy often experience psychological stress, anxiety, and depression, and worry about their children's future. They spend most of their time caring for their child's nutrition, health, treatment, and rehabilitation, and bear a considerable financial burden (Sankombo, 2023).

Statistics indicate that there are 15,000 children with cerebral palsy in Algeria, with an additional 150 new cases diagnosed annually. The parents of these children face significant hardship due to the lack of intensive treatment centers, specialized doctors, and medications for the condition, as well as the high cost of medical examinations and treatment. Parents also bear additional expenses for wheelchairs, food, and clothing (Al-Shorouk Newspaper, 2021).

Cerebral palsy represents a group of symptoms resulting from malformations or damage to parts of the brain that control muscle movements and motor skills. These symptoms may be accompanied by malformations in other brain regions and affect a child's speech and intellectual development (Al-Lala, 2011). This leads to a range of chronic motor problems that affect the body's ability to coordinate movements and maintain balance (Al-Rukin, 2021).

Recent evidence from international studies reinforces these undeniable patterns of burden and stress on mothers who are primary caregivers of these children. For example, a study by Krstic & Oros (2012) reported that the mothers of children with cerebral palsy exert additional effort in caring for the affected child, which may lead to neglect of her roles towards other family members, leading to poor functional performance and imbalance in relationships especially in low income families in Africa and Middle East. Furthermore, having an affected child in the family significantly increases psychological and family stress level. Studies by Glasscock & Robota-fay highlighted the impact of the experience of having a child with cerebral palsy on the mother's life, bearing the burden of providing positive care for the child with cerebral palsy (Mohammed, 2014, p. 148).

Al-Abbasi’s study (2022) indicated that 80% of mothers of children with cerebral palsy suffer from nervous fatigue. Rebeiro and others (2014) found that 45.3% of the mothers of children and adolescents with cerebral palsy presented high levels of stress. Moreover, another study in Europe conducted by Parkes and others (2011) with 818 parents of children with cerebral palsy, it was found that 36% of them presented high levels of parental stress, which is significant when compared with the rate of 5% in the general population.

The results of Benj and Lo (2024) in a qualitative analytical study of 84 English studies indicated that mothers of children with cerebral palsy suffer from physical burden and psychological stress while caring for their children. One of the most prominent challenges they face is providing social support and appropriate health care for their children. They should be helped to cope with difficulties and adapt to the role of caregivers as quickly as possible, and to promote the healthy growth of their children.

Diagnosing, treating, and rehabilitating children with cerebral palsy is a long-term process. While having children is a source of joy for parents, having children with cerebral palsy and their special needs can increase emotional, physical, and financial stress (Dambi et al., 2015). There is substantial evidence that mothers, as primary caregivers for children with

cerebral palsy, experience higher levels of fatigue and depression, and a lower quality of life compared to mothers of healthy children (Garip et al., 2017; Lee et al., 2019)). They also face challenges such as social limitations and decreased marital satisfaction (Khayatzadeh Mahani et al., 2013).

Many studies have confirmed that in order to deal with the psychological stress experienced by mothers of children with cerebral palsy, they must possess some strategies for coping with this stress, such as problem-solving, relaxation, endurance, adaptation, resistance, and other coping mechanisms. Mothers of children with cerebral palsy (CP) face immense physical and emotional demands. Effective stress management relies on a combination of positive reframing (focusing on small victories and long-term resilience), problem-focused coping (proactively organizing therapies and medical care), and seeking robust social or peer support.

Thus, the stressful event experienced by the mother of the affected child drives her to adopt adaptive responses to be able to deal with her son's condition by resorting to various coping methods. Regardless of the type of method adopted, coping strategies are considered stabilizing factors that help the individual maintain their psychological and social harmony in the face of stressful events in their life. Adopting these methods helps in dealing with stress, reducing its negative effects, and achieving psychological adjustment and a state of comfort and satisfaction (Al-Daribi, 2010, p 680).

Raising a child with cerebral palsy is stressful for the parent because it requires an intensive physical engagement as well as coping with emotional reactions to the child’s condition. Parents have different modes of adapting to stress and demands caused by the disorder. The Resiliency Model of Family Stress, Adjustment and Adaptation postulates that the use of certain coping strategies facilitates successful family adaptation to the child’s condition. The most frequently used strategy is reframing, whereas other strategies were used less frequently (Krstić & Oros, 2012).

Despite the importance of the topic, there is a scarcity of studies that have addressed it worldwide, and there is not a single study in Algeria that has addressed psychological stress and coping mechanisms among mothers of children with cerebral palsy. Therefore, the current study will attempt to identify the level of psychological stress among mothers of children with cerebral palsy, and what are the most commonly used coping methods.

In light of the above, the research problem can be summarized in the following question:

- What is the level of psychological stress among mothers of children with cerebral palsy, and what are the most coping strategies used by them?

This leads to the following sub-questions:

- What is the level of psychological stress among mothers of children with cerebral palsy?
- Are there statistically significant differences at significant level of (0.05) in the level of psychological stress among mothers of children with cerebral palsy attributed to the type of cerebral palsy, the mother’s age and the gender of the affected child?
- Is problem-solving strategy the most frequently used coping strategy by mothers of children with cerebral palsy?

1.1- The Importance of Study:

Studying the psychological stress and coping strategies of mothers of children with cerebral palsy is crucial for understanding the magnitude of their "caregiver burden" and its impact on their quality of life. This research helps in designing professional psychological support and guidance programs that prevent burnout, which in turn positively affects family stability and the health of the child with cerebral palsy. Moreover, the current study is of great importance, as it is the first Algerian study to address psychological stress and coping mechanisms among mothers of children with cerebral palsy. The importance of the study lies in the following:

- Theoretical Importance:
  - The importance of the topic lies in the importance of the variables it addresses, as it seeks to identify the level of psychological stress among mothers of children with cerebral palsy, the differences that are attributed to a number of variables, as well as identifying the most effective coping strategies with psychological stress among these mothers.
  - Providing reference data for the Algerian environment: The study provides quantitative data on the level of psychological stress and coping mechanisms among mothers of children with cerebral palsy in the state of Oum El Bouaghi in Algeria. This data represents a starting point and a reference base for subsequent researchers interested in studying these phenomena and other related psychological variables in the local context.
  - The study focuses on examining the latest psychological aspects of mothers of children with cerebral palsy, considering that mothers are often the most affected by their child's condition, unlike most research focusing on the child with cerebral palsy.
- Practical importance:
  - The current study can contribute to directing the attention of officials to the importance of designing guidance programs for mothers of children with cerebral palsy to achieve their psychological adjustment and improve their quality of life.
  - Guiding Psychological Counseling Efforts: The study results provide academic and psychological counseling specialists in the Algerian environment with a clear framework for understanding cerebral palsy, the level of psychological stress, and coping strategies among mothers of children with cerebral palsy. This enables them to design counseling programs to reduce levels of psychological stress and enhance coping strategies among these mothers.
  - Supporting academic decision-makers: Decision-makers in institutions concerned with children with disabilities and their families, such as the Ministry of Social Solidarity and others, can benefit from the results in re-evaluating some policies supporting families of people with disabilities and providing social, material, and psychological support to mothers of children with cerebral palsy.
  - Improving the quality of family life: The results of this research help in designing guidance programs to reduce psychological stress among mothers of children with cerebral palsy, which contributes to enhancing their psychological stability, thus reducing the severity of behavioral and psychological problems that may appear in the child, which is reflected in the integration of care provided.

1.2- Objectives of the Study:

- Explore the level of psychological stress among mothers of children with cerebral palsy.
- Examine the statistical differences in the level of psychological stress among mothers of children with cerebral palsy attributed to the type of cerebral palsy (hemiplegic/quadriplegic/spastic).
- To find out if there are statistical differences in the level of psychological stress among mothers of children with cerebral palsy attributed to the mother's age (twenties/thirties/forties).

- To determine if the statistical differences in the level of psychological stress among mothers of children with cerebral palsy attributed to the gender of the affected child (male/female).
- To identify the most frequently used coping strategy among mothers of children with cerebral palsy.

2. Theoretical Background of the Study:

2.1 Cerebral Palsy (Paralysie cérébrale)

a) Concept of Cerebral Palsy:

Cerebral Palsy is a chronic neurological disorder resulting from brain damage before, during, or after birth. This brain damage leads to various movement disorders, affecting body posture and balance. Children with cerebral palsy may also experience secondary disabilities, including intellectual disabilities, language and speech disorders, and seizure disorders. (Al-Khatib, 2001).

It is a general impairment and abnormalities in mental functions, which appear during developmental stages accompanied by learning disabilities and social adaptation issues of the patient, or in maturation, or both "APA (Haak et al., 2009).

A noticeable decline in a child's mental performance accompanied by a disability in sensorimotor adaptation and adaptive behavior, negatively affecting the child's motor performance (Mimoun & Daghnowa, 2012, p 426).

In essence, cerebral palsy is a type of paralysis resulting from brain damage, causing a persistent yet non-progressive and immature disorder in movement and posture. It means that the damage to the child's brain is permanent and cannot be cured, but interventions can improve and develop the child's performance skills and motor abilities.

b) Types of Cerebral Palsy:

- **Spastic Cerebral Palsy:**

The term "spasticity" refers to muscle stiffness. Stiff muscles slow down movement and limit its agility and flexibility. Incorrect commands from the damaged brain part cause the body to fixate in incorrect postures, making it difficult for the child to get rid of them. This results in a lack of movement diversity and can lead to gradual deformities, worsening with the child's emotional stress, exertion, or when moved too quickly. The transfer of stiffness from one side of the body to the other may be associated with changes in head posture. (Shamsoddini et al., 2014).

Accompanying symptoms include:

- Hands clenched and joints folded, sometimes inward foot rotation.
- When standing to walk, the child stands on the tips of their toes.
- Delay in acquiring skills and movements such as rolling over, sitting, crawling, walking.
- Imbalance in head, neck, and shoulder posture.
- Difficulty in tasks like holding a cup due to inability to find balance.
- Possible presence of auditory visual problems, speech difficulties, drooling, epileptic seizures. (Obaid, 2012)

- **Athetoid Cerebral Palsy:**

This involves uncontrolled movements of the arms, legs, head, and other body parts, which can be fast or slow, due to damage in the brain area controlling the speed and strength of muscles. Muscles involved in speech undergo involuntary movements, resulting in speech

that varies between slow and unclear. These movements increase under stress and stop during sleep. (Ben Ayad, 2019, p 83).

- **Rigidity Cerebral Palsy:**

This includes severe spasms resulting from acute muscle tension leading to muscle contractions. The child experiences continuous stiffness, limiting voluntary movements considerably with severe resistance to movement due to the rigidity of the affected child's muscles, often accompanied by specific intellectual disabilities.

- **Ataxic Cerebral Palsy:**

Ataxic cerebral palsy results from poor muscle control followed by cerebellum damage, leading to tendon and ligament relaxation. This condition results in limited movement, and the individual may be entirely unable to move. It is often associated with speech irregularities and rapid, involuntary eye movements due to muscle relaxation or weakness. Characteristics include:

- Joint laxity.
- Balance issues, especially when walking.
- Imprecision in hand movements.
- Intellectual delays or seizure conditions do not occur. (Ben Ayad, 2019, p 83).

- **Mixed Cerebral Palsy:**

This type may present a combination of symptoms due to damage in more than one area of the brain to varying degrees. The primary symptoms of this cerebral palsy type are clear, with some secondary symptoms, meaning the symptoms are mixed between spastic cerebral palsy and other forms of cerebral palsy (Al-Nadawi & Al-Muhamadawi, 2016, p 78).

c) Diagnosing Cerebral Palsy:

Diagnosis in children primarily relies on parental observations, especially the mother's, such as:

- Difficulty in breastfeeding normally.
- Delay in gaining head control.
- Excessive crying and moodiness.
- Lack of reflexive kicking at three months.
- Abnormal contraction in the arms and legs.
- Back arching while sitting.
- Delay in smiling and cooing.
- Delay in standing or walking.
- Tongue movements inside or outside the mouth.

Subsequently, if the condition is recognized later in life, seeking a medical diagnosis involves a series of procedures, including clinical examination, brain mapping, CT scans, cerebral angiography, and routine laboratory tests. A neurologist conducts this diagnosis to confirm or rule out cerebral palsy and assess the physical and motor condition. A psychological and educational diagnosis is also necessary to determine the impact on cognitive, psychological, emotional, and behavioral aspects to provide appropriate care. (Al-Khafch & Hananda, 2005, p 11).

d) Parental Response to a Child's Cerebral Palsy Diagnosis:

Parents' reactions to their child's diagnosis vary, but typically include the following stages:

- **Shock:**

The initial reaction, where the reality of the diagnosis brings disappointment and sorrow. At this stage, parents need support and understanding.

- **Denial:**

A natural human response to unwanted, unexpected, and painful situations, especially concerning their children. Denial serves as a defense mechanism to alleviate the severe anxiety caused by the diagnosis.

- **Grief and Sadness:**

A mourning period after completely losing hope for the child's improvement, recognizing the child has a chronic disability that will accompany them for life.

- **Guilt:**

A reaction from parents may be expected. It's a natural outcome of disappointment and frustration, often directed towards oneself as an expression of guilt or regret for something done, or towards external sources like educators or doctors.

- **Acceptance and Care:**

After previous suffering, parents have no choice but to accept the situation and acknowledge their child's condition. It's crucial for families to reach this stage quickly because delays in services can deprive the child of necessary medical and rehabilitative care, which might be delayed due to the denial of the problem. Adaptation involves understanding and addressing the child's special needs, a process that gradually unfolds after parents have overcome feelings of guilt. (Anwar, n.d, p 13).

2.2 Psychological Stress

a) Concept of Psychological Stress:

Psychological stress is any incident in which internal or environmental demands exceed the adaptive resources of an individual's social unit or physiological system (Obaidat, 2008).

Walker defined psychological stress as an individual's encounter with difficulties and problems that exceed their capacity to endure and adapt, which can affect human health and safety by creating short-term and long-term psychological reactions within the individual (Tayssir, 2018, p 945).

Kawafha and Youssef (2007, p 179) see it as a state of imbalance and confusion that leads its bearer to undertake mental and emotional reactions that are undesirable, leading to tension, anxiety, sadness, and sorrow.

Reviewing the theoretical heritage, it is apparent that researchers' views on the concept of psychological stress differ between those who defined it as an external physical, psychological, or social stimulus, those who considered it a response to an external stimulus, and those who saw it as the result of the interaction between the individual and their environment.

Selye and Servant Dominique classified psychological stress as a response, where Selye viewed it as a set of symptoms coinciding with exposure to a stressful situation, an unspecified response of the body towards environmental demands such as family changes, job

loss, etc., which places the individual under psychological stress (Obaid, 2008). Dominique saw it as a state of distress and strain resulting from life's burdens and difficulties.

Ibrahim (1996) views psychological stress as a stimulus defined as an internal or external change that can lead to an acute and continuous emotional response.

Lazarus sees psychological stress as a particular relationship between the individual and their environment, which the individual appraises as taxing and demanding, exceeding their resources to deal with it and posing a threat to their health. It is the state resulting from an imbalance between the demands of a situation and the individual's ability to respond to this situation (Abdelrahman, 2008).

Operationally, it is defined as the degree to which a subject scores on the Psychological Stress Scale by Al-Khatatna (Al-Khatatna, 2011, p174).

b) Sources of Psychological Stress Faced by Families of Intellectually Disabled Children:

Sources of psychological stress for parents of children with special needs lie in daily life demands and long-term care, the stigma they face, long-term uncertainty in the child's diagnosis or among parents themselves, and a reduction in their social relationships, along with a lack of information about disabilities and available services.

The pressures faced by parents of children with special needs stem from:

- The presence of a disabled child imposes additional burdens on the family, leading to numerous family problems, increased financial burdens, isolation, chronic exhaustion, and emotional issues.
- Parents feel a decrease in support and resources from friends, relatives, and official institutions related to their child's disability.
- Social isolation is one of the outcomes of caring for a disabled child. Parents may feel isolated from the rest of their extended family and friends. Neighbors may express fears or feelings of discomfort or shame about the disability (Hanfi, 2007, p 58).

Some studies have focused on the life stages of the family and the types of stress experienced by families of disabled individuals. The infant and breastfeeding stage begins with the child's diagnosis, followed by childhood and school age, which involves dealing with peer reactions, arranging care, and activities for them. Adolescence presents difficulties in facing the child's condition, dealing with their sexual problems, overcoming their isolation from peers, and planning for their future. Finally, there is the stage of adjusting to the ongoing responsibility of the family and dealing with the lack of social integration (Asfour, 2012, p 21).

2.3 Motherhood

a) Concept of Motherhood:

Motherhood is a biological and psychological relationship between a woman and the children she bears and raises, whether daughters or sons. It is considered a form of social and emotional investment; she lives for her child’s upbringing and development. On the other hand, she finds in them a means to achieve self-fulfillment and her aspirations, seeing in her child's life an opportunity to live again through them. (Abdel Nasser, n.d., p 136).

b) Mother-Child Relationship:

The mother-child relationship begins from birth, where the child shows an inclination to be close to the mother. This is not learned behavior but a natural need with a fundamental

function that drives the mother to care for her offspring and cater to their needs. (Mimouni, 2003, p 176).

According to psychoanalytic theory (Ibn Al Tayeb, n.d., p 33), establishing a relationship with someone requires having a conception and a mental image of that person. The mother's perception of her child stems from the desire for motherhood, which develops through ambiguous conflicts and the narcissistic regulations of the Oedipal child. It is considered that the future child is the result of a long story that begins and has existed since ancient times in the mother's unconscious life.

Speaking of the "unconscious child," the fantasies organized by the desire for motherhood help us understand it since this desire appears from early childhood, expressed through play (role-playing as a mother, teacher, etc.). Freud described in his depiction of the primal scene fantasy how children construct their family narratives. Conversely, they talked about the "fantasy child," resulting from the desire to have a child, which is entrenched in the couple's problems, and pregnancy gives it meaning. It also settles in the model of family equilibrium, involving cultural necessities and generational succession.

The fantasy child is a product of daydreams, a fantasy construction based on the desire for motherhood and its fantasies, satisfying the mother's narcissism. During pregnancy, the child becomes a reality the mother prepares to welcome, possibly preferring one gender or form over another, thus forming a primary imaginary body image expected at birth.

At that moment, the birth becomes the moment of encounter with the real child, and the mother begins to form perceptions of what her child is like, thus representing a reconstruction of this child's image based on the general characteristics of the newborn.

c) Relationship Between the Mother and the Child with Disabilities:

After birth, the image of the fantasy child quietly gives way to the reality of the actual child (Ibn Al Tayeb, n.d., p 36). However, when a child is born with a physical or mental disability or cerebral palsy, the mother's initial reaction is often shock and anxiety. Afterward, some mothers manage to overcome the crisis that follows, displaying acceptable motherly behavior towards their disabled child.

The success of communication between the child and the mother depends on both parties' behavior. The child's disability may place them in a situation where they cannot perceive or feel stimuli that are less developed than those of a non-disabled child. Thus, the mother intervenes more in her interaction with the disabled child compared to a non-disabled child. This is due to the mother's belief that her child is passive and that she needs to be more interventionist and directive. The relationship between the two is dominated by the mother and characterized by the child's dependency (Kantar, 1992, p 170).



Figure (1) The Evolution of the Mother's Reaction to the Child's Injury

2.3 Coping Strategies

a) Concept of Coping Strategies:

Lazarus and Folkman (1984) defined coping strategies as the effort an individual makes to reduce stress and create new ways to cope with new situations at every stage of life.

Lazarus (1993) described them as attempts made by an individual to change the circumstances of direct stress or to alter their evaluation of it, requiring the presence of an effective problem-solving location as well as emotional regulation of stress.

Lazarus and Folkman (1984) viewed them as the sum of cognitive and behavioral efforts learned by an individual to cope with or reduce internal or external demands that are appraised as threatening or exceeding their personal resources.

In other words, they are cognitive, behavioral, and emotional methods used by an individual when faced with situations perceived as threatening, whether internally or externally (Jabali, 2012, pp. 78, 79).

Operationally, they are defined as the degree to which subjects score on the Coping Strategies Scale for Psychological Stress by Lazarus and Folkman (Afifi, 2019, p 340).

b) Classification of Coping Strategies:

Folkman and Lazarus proposed two main types of coping:

- **Problem-focused coping:**

These are efforts by an individual to modify the relationship between themselves and their environment by changing their behavioral patterns or by modifying the stressful situation, with the goal of reducing the demands of the stressful situation or increasing the individual's personal capabilities to face it. This is done through gathering information and taking actions to solve the problem. The individual collects information and takes appropriate action by developing a plan to respond according to the problem's requirements to alleviate or stop the stressfulness of the situation.

- **Emotion-focused coping:**

These efforts are made by an individual to regulate the emotions resulting from a stressful situation. Techniques used in this strategy include:

- **Avoidance:** Diverting attention away from stressful situations through either behavioral or cognitive alternatives, which are relatively effective.
- **Denial:** This involves delaying the problem, where the individual attempts to change the true meaning of the stressful situation, ignoring the severity of the situation, or refusing to acknowledge what is happening. (Stanisławski, 2019)

c) Factors Influencing Coping Strategy:

- The individual's personality
- The physical environment in which the individual lives
- Social and cultural factors, including values, preferences, and social norms that affect decision-making. (Obaid, 2008, p. 207)

3. Methodological Procedures of the Study:

3.1 Study Hypotheses:

- There is a high level of psychological stress among mothers of children with cerebral palsy.
- There are no statistically significant differences in psychological stress level at a significant level of (0.05) among mothers of children with cerebral palsy, which is attributed to the type of cerebral palsy (hemiplegic/quadriplegic/ataxic).
- There are no statistically significant differences in psychological stress level at a significant level of (0.05) among mothers of children with cerebral palsy, attributed to the mother's age (twenties/thirties/forties).

- There are no statistically significant differences in psychological stress level at a significant level of (0.05) among mothers of children with cerebral palsy, attributed to the gender of the affected child (male/female).
- Problem-solving strategy is the most frequently used coping strategy by mothers of children with cerebral palsy.

3.2 Location and Duration of the Study:

The study was conducted from 11/10/2022 to 18/09/2023 at the Pedagogical Center for Psychophonological Care for Motor Disabled and Autistic Children in Ain Beida, Oum El Bouaghi, and the First Step Clinic for Intensive Treatment and Motor and Functional Rehabilitation in Ain Beida, Oum El Bouaghi.

3.3 Study Methodology

The study utilized a descriptive approach, appropriate for investigating the level of psychological stress and coping strategies among mothers of children with cerebral palsy. This methodology enables the examination of research variables as they naturally occur within the sample population without manipulation by the researcher. It is one of the most common approaches in educational research. Al-Baiaty (2018) confirmed that the approach is based on the field survey method and the pursuit of accurate scientific descriptions of the variables studied, then describing the current situation and working to interpret it while identifying the opinions, beliefs, and trends of individuals and groups.

3.4 Study Tools

a) Psychological Stress Scale

This scale was initially developed by researchers Al-Sartawi and Al-Shakhs in 1998, tailored for the Jordanian context. It was later adapted for the Sudanese context by researcher Abdullah Faraj in 2009, and once again for the Algerian context by researcher Aicha Sabah in 2016.

Aicha Sabah further validated its psychometric properties for the Algerian society. The scale, as adapted by Aicha Sabah, consists of 32 items divided into the following categories:

- **Psychological and physical symptoms:** 8 items
- **Feelings of despair and frustration:** 4 items
- **Cognitive and psychological issues:** 6 items
- **Family and social problems:** 4 items
- **Concerns about the child's future:** 3 items
- **Independent performance issues:** 3 items
- **Inability to bear the child's burdens:** 4 items

Responses range from "Always (5)" to "Never (1)". To answer each item, there is a scale of 1 to 5 points, expressing answers ranging from never to always, where the phrase 'never' takes the point (1) and the phrase 'always' takes the point (5), with points (2, 3, 4) in between.

b) Coping Strategies Scale

The Coping Strategies Scale by Folkman and Lazarus (1980) is divided into five dimensions, focusing on problem-centered strategies and emotion-centered strategies, comprising a total of 29 items across the following five dimensions:

- **Problem-solving:** 8 items
- **Seeking social support:** 5 items (problem-centered strategies)

- **Positive reappraisal:** 5 items
- **Avoidance with positive thinking**: 7 items
- **Self-blame and guilt**: 4 items (emotion-centered strategies)

Responses range from "Always (5)" to "Never (1)". To answer each item, there is a scale of 1 to 5 points, expressing answers ranging from never to always, where the phrase 'never' takes the point (1) and the phrase 'always' takes the point (5), with points (2, 3, 4) in between.

This scale is part of personality assessments, crucial for balancing our physiological, psychological, and emotional states when facing stressful events or situations. Standardized for the Algerian population, it has been widely accepted and utilized in numerous studies and academic theses within Algerian universities, demonstrating high psychometric qualities.

3.5 Statistical Methods

Data analysis was conducted using mean, standard deviation, T-test, and ANOVA to interpret the study's findings. The researchers verified the normal distribution of the data.

3.6 Study Sample

The sample of the study consists of a purposive sample of 52 mothers of children with cerebral palsy in Oum El Bouaghi province. Their age ranged from 26 years and 11 months to 53 years and 11 months with average age of 39.76 and Standard Deviation of 7.98. The following tables clarify the distribution of the study sample in light of the type of cerebral palsy, mother's age and the child gender.

a) Distribution of the Study Sample by Type of Cerebral Palsy

Table (1) Sample Distribution by Type of Cerebral Palsy

Type of Cerebral Palsy	Frequency	Percentage
Hemiplegic	19	36.6%
Quadriplegic	12	23.1%
Ataxic	10	19.2%
Spastic	11	21.2%
Total	52	100%

The study sample consisted of 52 mothers of children with cerebral palsy, most of their children suffered from hemiplegic cerebral palsy (36.5%), 23.1% of the children suffered from Quadriplegic cerebral palsy, 21.2% of the children suffered from Spastic cerebral palsy and 19.2% of the children suffered from Ataxic cerebral palsy.

b) Distribution of the Study Sample by the mother's age

Table (2) Sample Distribution by Mother's Age

Age of Mother	Frequency	Percentage
26-35	17	32.69%
36-45	20	38.46%
46-55	15	28.85%
Total	52	100%

The study sample consisted of 52 mothers of children with cerebral palsy, most of them are in the 36-45 age group (38.46%), 32.69% are in the 26-35 age group and 28.85% are in the 46-55 age group.

c) Distribution of the Study Sample by Gender of the Child

Table (3) Sample Distribution by Gender of the Child

Gender of Child	Frequency	Percentage
Male	21	40.4%
Female	31	59.6%
Total	52	100%

The study sample consisted of 52 mothers of children with cerebral palsy, most of their children are females children (59.6%) and 40.4% are males.

4. Presentation and Discussion of Study Results

4.1 Results Presentation Based on Hypotheses

- **First Hypothesis:** "There are high level of Psychological stress among mothers of children with cerebral palsy." To test this hypothesis, we relied on a one-sample T-test as shown in the following table:

Table (4) Mean, standard deviation, and one-sample T-test results

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Mean	Standard Deviation	Hypothetical Mean	Significance Level	T-value	Significance Level
98.96	14.54	96	0.05	1.47	0.15

From the table above, the T-value is equal (1.47) and is not significant at the 0.05 Level. It is clear that the sample mean exceeds the hypothetical mean. These results indicated that the level of psychological stress among mothers with cerebral palsy is higher than the hypothetical mean but at a moderate level. The mean score of the study sample on the Psychological Stress Scale was 98.96 with a standard deviation of 14.54, falling within the moderate range (83.2-108.8) based on a 5-point Likert scale. This indicates that the "psychological stress level among mothers of children with cerebral palsy is moderate," leading us to **reject the hypothesis due to its non-fulfillment.**

- **Second Hypothesis:** "There are no statistically significant differences at a significant level of (0.05) in psychological stress level among mothers of children with cerebral palsy attributable to the type of cerebral palsy." To test this hypothesis, we used a one-way ANOVA test as detailed in the following table:

Table (5) Significance of differences in the level of psychological stress attributed to type of cerebral palsy

Source of Variation	Sum of Squares	DF	Mean of Squares	F	Sig.
Between Groups	336.266	3	112.089	0.52	0.67
Within Groups	10443.657	48	217.576		
Total	10779.923	51			

The previous table shows that the F-value is 0.52 with a significance level of 0.67, which is higher than the significance level adopted in our study. This indicates that there are no substantial differences in psychological stress level among mothers of children with cerebral palsy attributable to the type of cerebral palsy, leading us to **accept the hypothesis.**

- **Third Hypothesis:** "There are no statistically significant differences at significant level of (0.05) in psychological stress level among mothers of children with cerebral palsy attributable to the mother's age" To test this hypothesis, we relied on a one-way ANOVA test as shown in the following table:

Table (6)Significance of differences in the level of psychological stress attributed to the mother's age

Source of Variation	Sum of Squares	DF	Mean of Squares	F	Sig.
Between Groups	7.138	2	3.569	0.016	0.984
Within Groups	10772.785	49	219.853		
Total	10779.923	51			

From the table (6) above, the F-value was 0.016 with a significance level of 0.984, which is higher than the significance level set for our study. This implies that there are no significant differences in psychological stress level among mothers of children with cerebral palsy attributable to the mother's age, leading us to **accept the hypothesis.**

- **Fourth Hypothesis:** "There are no statistically significant differences at a significant level of (0.05) in psychological stress level among mothers of children with cerebral palsy attributable to the gender of the child." To test this hypothesis, a two-sample independent Mann-Whitney test was conducted as shown in the following table:

Table (7)Significance of differences in the level of psychological stress attributed to the child's gender

Gender Distribution	**Number of Participants**	**Mean**	**Standard Deviation**	**T-value**	**Significance Level**
Males	21	96.14	13.32	-1.15	0.25
Females	31	100.87	15.22		

From the table above, there appears to be a small difference in the mean scores between males and females. However, the T-value reached (-1.15) at the significant level of (0.25), which is not statistically significant at the significant level of (0.05). This indicates that the apparent differences are not substantial, leading to **accepting the hypothesis.**

- **Fifth Hypothesis:** "Problem-solving is the most frequently used coping strategy by mothers of children with cerebral palsy." To test this hypothesis, the mean and standard deviations were extracted as shown in the following table:

Table (8) Mean scores and standard deviations of coping strategies

Strategies	Mean	Average approval	Standard Deviation	Rank
Problem-solving	29.46	3.68	9.12	1
Social support	16.32	3.26	4.67	2
Avoidance	15.81	3.16	3.91	3
Self-blame	21.58	3.08	6.23	4
Positive reappraisal	11.97	2.99	2.86	5

The comparison of mean scores for the strategies indicates the following order: Problem-solving had the highest mean score of 29.46 (with average approval of 3.68), followed by Social Support with a mean score of 16.32 (with average approval of 3.26), then Avoidance with a mean score of 15.81 (with average approval of 3.16), Self-blame with a mean score of 21.58 (with average approval of 3.08), and finally Positive reappraisal with the lowest mean score of 11.97 (with average approval of 2.99). This shows that the most used coping strategy by mothers of children with cerebral palsy is problem-solving, thereby accepting the hypothesis.

5. Discussion of Study Results:

The data obtained from the first hypothesis using mean scores, standard deviations, and one-sample T-test results indicate that the psychological stress level among mothers of children with cerebral palsy is moderate. The results indicate that the average scores of psychological stress were higher than the hypothetical mean but remained within the moderate range. The psychological stress among the study sample was 98.96 with an average approval of 3.09 out of 5, which is moderate according to a 5-point Likert scale.

This aligns with the findings of Heba Moayad Mohammed's study titled "Psychological Stress among mothers of children with special needs," conducted on 100 mothers. It concluded that mothers of children with special needs experience psychological stress, with no difference between employed mothers and housewives in terms of psychological stress level (Mohamed, 2018).

This can be interpreted by the effectiveness of coping strategies used by mothers, and their relatively high level is due to the demands of caring for a child with cerebral palsy, which involves specific characteristics related to independent function burdens. This leaves mothers in a state of confusion as they are unable to make future plans, especially since their child cannot face life with limited capabilities, leading to a state of tension.

They attempt to find relief outside the family circle, only to encounter societal stigma regarding cerebral palsy as a disability, which is considered a disgrace to the family and especially the mother, causing her to bear feelings of guilt and suppression, potentially leading to physical symptoms and possibly chronic diseases (Jabali, 2012, p. 208).

These results can also be explained by considering the interaction model of psychological stress (Lazarus and Folkman, 1984), as mothers of children with cerebral palsy who receive treatment and rehabilitation in private centers and institutions in Algeria initially

experienced high levels of stress and negative feelings after the child's diagnosis (Biggs et al., 2014). However, with the passage of time, and with the recognition of the type of disorder and their children's needs, and receiving treatment and rehabilitation in these centers, they were helped to realize that having a child with cerebral palsy could be a blessing, and that it is possible to care for him and turn this affliction into a gift. This helps to adapt to the stresses and challenges they face. Also, mothers with social support networks from the extended family, those around them, and other mothers helped themselves reduce their stress to moderate levels. Furthermore, contemplation, moral values, religious commitment, faith in God Almighty, and the psychological resilience that mothers may possess also helped to reassess the stressful situation and made mothers realize that they possessed traits, characteristics, and inner strengths that helped them reduce the burdens, pressures, and challenges they faced in the journey of adapting and adjusting to their children's cerebral palsy.

The results for the second hypothesis regarding the differences in psychological stress level among mothers of children with cerebral palsy based on the type of cerebral palsy indicate that there are no substantial differences in the psychological stress level among mothers of children with cerebral palsy attributed to the type of cerebral palsy. The researcher attributes this to the similarity and overlap of symptoms among different types of cerebral palsy and the similarity in the mothers' suffering due to their child's condition.

The challenges faced by a child with cerebral palsy and their family in Algeria vary in nature and impact level on the families of affected children who struggle to understand life's demands and interact with society. This affects the family's structure, causing psychological stress, anxiety, anger, depression, and feelings of guilt. Other factors, such as family size, monthly income, and the mother being left alone without other family members, can affect the family's balance and cause a disruption in roles.

Regarding results for the third hypothesis related to the differences in psychological stress level among mothers of children with cerebral palsy based on the mother's age, clarifies that there are no substantial differences in the psychological stress level among mothers of children with cerebral palsy attributed to the mother's age variable. The researcher attributes the absence of differences to the fact that the role of the mother does not change with age, and the responsibilities she bears in caring for her affected child, other family members, performing various household tasks, and family obligations relate to the social and cultural role women, in general, and mothers, in particular, occupy in Algerian society and culture.

This was confirmed by the study of Hrairia and Tabal (2018), which aimed to explore the stages and characteristics of the development of the Algerian family and concluded by highlighting the traits of the socio-cultural model of the Algerian family and attempting to understand individual and collective behavior patterns.

The results for the fourth hypothesis regarding the degree of differences in psychological stress level among mothers of children with cerebral palsy based on the gender of the affected child, indicates that the apparent differences are not substantial. This can be explained by the fact that common symptoms among all children with cerebral palsy, such as delayed speech, speech distortions, difficulties in breastfeeding or eating and chewing, drooling, mobility, language, learning difficulties, academic failure, and overall developmental delay, are common between genders, especially during childhood before reaching puberty, where puberty characteristics start to differ between genders.

Regarding the fifth hypothesis, it is clear upon comparing the average score of the coping strategies used by mothers of children with cerebral palsy indicates that the most used

strategy by mothers of children with cerebral palsy is the problem-solving strategy. This can be explained by the fact that the mothers possess a strong religious conviction, which makes them consider their children's disability as divine decree and a test which they meet with patience and the hope of reward from God, along with frequent prayers and supplications.

This belief in God's decree and submission to His wisdom allows the mother to accept her child as he is, with all his undesired traits and behaviors sometimes, thus enabling her to tolerate his mistakes and flaws. Their faith in the ability to face stressful situations by seeking adequate information and gathering as much detail as possible about their child's condition drives them to seek help, advice, and information related to the injury from specialists for emotional comfort.

This aligns with the study by Jabali (2012) and the study by Ba'ija (2006) which emphasized that returning to religion represents the individual's return to religious values to achieve spiritual and emotional support to face psychological stress. Thus, the problem-solving strategy is seen as the pursuit and practical application of this submission, an outlet for releasing negative thoughts and emotions, a broader understanding of the problem, and not dwelling on the disability but rather hastening to solve the problem to avoid feelings of helplessness and dependency, not to mention the social pressures and the consequent social stigma for the mother and the family as a whole.

5-Conclusion

The present study reveals that mothers of children with cerebral palsy in Oum EL Bouaghi Province experience moderate levels of psychological stress, but these levels are higher than the hypothetical average yet tempered by adaptive coping without significant variations on the type of Cerebral Palsy, mother’s age or the gender of the child. This indicates a need for these mothers to receive counseling programs and support to enhance their psychological resilience and practical engagement with rehabilitation services. The levels of stress faced by mothers in Algerian society regarding access to appropriate systematic services, resources and treatment facilities for their children are consistent across different regions and do not differ based on the severity of the disability. These findings underscore the resilience of Algerian mothers while highlighting ongoing caregiving burdens amid limited systematic resources (Fritz & Sewell-Roberts, 2020)

Future research should larger, longitudinal and mixed methods designs to explore protective cultural factors and intervention efficacy along with effectively tailored psychological support programs, policy enhancements in the field of disability services and greater support for effected families to alleviate stress and improve quality of life for both mother and children cerebral palsy.

Recommendations:

In light of the findings of this study, the following recommendations can be formulated:

1 - Provide regular counseling and psychological support services for mothers to help them reduce and manage psychological and emotional stress and cope with negative feelings.

2 - Enhance mothers' self-confidence and sense of parental competence, thereby strengthening their resilience and improving their ability to cope with stress.

3 - Encourage mothers to practice relaxation techniques such as deep breathing and meditation.

4 - Early detection of symptoms of anxiety and depression and providing appropriate support.

5 - Establish support groups for mothers of children with cerebral palsy to share experiences and best practices.
6 - Strengthen social support from family, friends, and the local community.
7 - Raise community awareness about cerebral palsy to reduce social stigma.
8 - Organize training programs to educate mothers about the nature of cerebral palsy and how to manage it.
9 - Train mothers in positive coping strategies and effective adaptation to daily challenges.
10 - Provide reliable and up-to-date information about available services for children with cerebral palsy.
11 - Facilitate families' access to specialized health and rehabilitation services.
12 - Provide financial support programs for families bearing high treatment and rehabilitation costs. Providing mothers with respite periods through temporary childcare services when needed.
13 - Encouraging mothers to prioritize their physical health through proper nutrition, physical activity, and adequate sleep.
14 - Developing guidance programs within rehabilitation centers specifically targeting mothers.
15 - Strengthening collaboration between health, educational, and social institutions to provide integrated services for families.

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