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Mothers' Perception toward their Children who Suffering from Cerebral Palsy at the Pediatric Outpatient in Minia University Hospital

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Abstract

Background: Cerebral Palsy (CP) is weakness or problems with using muscles and is caused by abnormal brain development or damage in the brain that affects a child's ability to control muscles. **Aim:** This study aimed to assess mothers' perceptions toward children who suffer from CP. **Research design:** A descriptive design was used. **Sample:** Convenient sample included 200 mothers who have children with CP. **Setting:** Pediatric outpatient clinic in Minia University Hospital. **Tool of data collection:** One tool an interview questionnaire that includes 5 parts, **1st part is demographic** characteristics, **2nd part** is the past medical history of mothers and children, **3rd part** the mothers' knowledge, **4th part:** mothers' reported practice, **5th part:** Mothers' attitude scale. **Results:** 50% of studied mothers had poor knowledge. 30% had average knowledge and 20% had good knowledge about CP. 88% had unsatisfactory reported practice and 12% had satisfactory reported practice. 67 % had a negative attitude, and 33 % had a positive attitude. **Conclusion:** Most mothers had poor total knowledge about CP, most had unsatisfactory total reported practices, and more than two-thirds had negative attitudes about CP. There is a statistically significant relation between mothers' sociodemographic data, knowledge, reported practices, and attitudes. **Recommendations:** Provide an education program for mothers and design booklets about CP.

Keywords: Cerebral Palsy, Children, and Mothers' Perception

Introduction

Cerebral palsy (CP) is the most common cause of pediatric motor disability worldwide, affecting 2.4–3.6 per 1000 children. The motor disability of CP can be accompanied by intellectual, communicative, sensory, and musculoskeletal impairments in various severity and complexity. CP is defined as non-progressive chronic encephalopathy of childhood, is caused by a lesion that occurs in the pre, peri, or postnatal period and affects the central nervous

system in the phase of structural and functional maturation (1).

It is a predominantly sensorimotor dysfunction involving muscle tone, posture, and voluntary movement disorders. Sensory, cognitive, and language impairments appear in addition to learning difficulties and behavior problems. Commitments such as spasticity, muscle weakness, and postural instability result in walking difficulties in 90% of children with CP. In addition, some children have complex mobility

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and self-care limitations, such as food, clothing, and hygiene (2).

The etiology of CP is heterogeneous, multifactorial, and only partially understood. When looking at etiological risk factors, traditionally within the context of CP, which are considered by likely timing of exposure, i.e., prenatal, perinatal, or postnatal. However, with greater use of imaging and a better understanding of brain development, it becomes apparent that the causal pathways to the development of CP are more complex (3). While CP results from exposure to a single etiological factor, as perinatal stroke, it follows serial exposure to multiple factors, interacting to produce irreversible brain injury. Perinatal asphyxia in the preterm neonate is followed by circulatory failure and neonatal infection. Intrauterine infection is an important, although relatively rare etiological factor of CP (4).

The symptoms of CP vary with each child and range from mild to severe. Many children with CP have normal intelligence. The disease is suspected during infancy if there are feeding problems, seizures not associated with high fever, and developmental delays. Developmental milestones are not achieved at the expected age levels. Persistence of primitive reflexes e.g., the Moro and tonic neck reflexes be seen. Diagnostic tests include metabolic and genetic testing and Magnetic Resonance Imaging (MRI). Early recognition is important for appropriate referrals (5).

The treatment is performed to promote the highest degree of independence possible for the child, and it must be started early, in association with the care of a caregiver. Children with CP usually need multidisciplinary health care due to the disease's varying severity and clinical outcomes. On top of that, family involvement in the management of disabled children is remarkable, especially for mothers. Mothers are considered the main caregiver, who takes over the responsibility for the whole dynamics of

raising and caring for a child with special needs (6).

Mothers' perception of cerebral palsy children for improving knowledge, practice, and attitude, through seeking counseling and community can help parents and children gain confidence despite their disability and help them feel more hopeful for the future. The most important thing to remember is not to be alone. Thus, when compared to parents of typically developing children, parents of children with CP experience greater stress, lower psychological well-being, and worse physical health and the health team should help parents to adapt to children's conditions (7).

The impact of a lifelong condition as CP is widespread, and the impact on the lives of their mothers is extremely important. Stress and quality of life (QoL) have been an ongoing concern for care providers. Coping with the news about a health concern and a subsequent diagnosis of cerebral palsy has been related to parental grieving and stress. There is evidence of high levels of depression in this population of care providers. There has been a report of social isolation, impact on family dynamics, physical strain, sleep disturbance, and decreased ability to maintain employment (8).

The lack of biomedical mothers' knowledge, especially among those with limited education, is associated with a highly negative impact on the family's life. Very few mothers had received information about CP from health workers. In routine clinical practice, health workers should provide families of children with developmental disability with the information, support, and attention needed (9).

Mothers experience stress, physical burdens, financial difficulties, stigmatization, and discrimination. Regarding the framework of the International Classification of Functioning (ICF-CY),

the living environment is a contextual factor that can contribute to the outcomes of children with CP. The family setting is the main living environment for children with a developmental disability; what the family brings to the child's environment will influence developmental trajectory and depend on the family's perception of the child's developmental disability (10).

Community health nursing uses every teaching opportunity and encourages the mothers involved in the child's care within the scope of their comfort level. The community health nurse roles in home health care (HHC) are the roles of clinicians that provide direct care to clients and families, which include educator, researcher, administrator, and consultant are seen in home health care (11).

Significance of the study

The prevalence of cerebral palsy in Damanhur at Elbuhera Governorate included one hundred sixty-one children with CP receiving physical therapy services of both genders, who participated in the study done, and mentioned that their ages ranged from one month up to 14 years. Children were recruited from two public hospitals and six private centers in Damanhur, and it was revealed that the prevalence of CP children who received physical therapy services was 0.8/ 1000 live births in Damanhur. Boys and girls represented 39.1% and 60.9% respectively of total cases. The percentage of CP types was spastic 88.2%, hypotonic 5%, dyskinetic 4.9%, and ataxic 1.9% (12).

Mothers are the primary care providers of children with CP or other children, and the daily lives of mothers with children affected by cerebral palsy are often more impacted as mothers are usually the primary caregivers and more likely to experience emotions and challenges (13). Mothers of children with CP need information about practical skills to deal with everyday problems (14), Assessing mothers' perception toward their children who have cerebral palsy is an important issue (15).

Culture can affect children's values, language, belief systems, and understanding of themselves as children and as members of society, specifically those of their mothers, who sharpen their values and socialized practices. A language develops sayings that reflect cultural norms, slang terminology that reflects cultural trends, or even syntax that reflects cultural beliefs (16). When raising children with CP, both overprotection and the negative attitudes of other people interact with the emotional development of the children (17).

The community health nurses provided interventions to support and help mothers in coping with the emotional aspects of the chronic disorder. Initially, the mothers need information and support in understanding the implications of the diagnosis and all the feelings it engenders. Later mothers need clarification regarding expectations from the child and health care professionals (18). The nurse can support the mothers by acknowledging and addressing mothers' concerns, and frustrations, by noting and appreciating their problem-solving skills and their approaches to helping the child (19).

Aim of the study

This study aims to assess mothers' perception toward their children who suffering from cerebral palsy at the pediatric outpatient in Minia University Hospital through:

1. Assess the mothers' knowledge about cerebral palsy towards their children suffering from cerebral palsy
2. Appraisal of the mothers' reported practice toward their children suffering from cerebral palsy.
3. Identify the mothers' attitude towards their children suffering from cerebral palsy.

Research Questions:

1. What is the knowledge of mothers about cerebral palsy towards their children suffering from cerebral palsy?

2. What are the practices of mothers towards their children suffering from cerebral palsy?
3. What is the attitude of mothers towards their children suffering from cerebral palsy?
4. Is there a relation between mothers' knowledge, practice and attitude towards their children suffering from cerebral palsy?
5. Is there a correlation ship between the mothers' demographic characteristics and their knowledge, reported practices, and attitude towards their children suffering from cerebral palsy?

SUBJECTS AND METHODS

Research design:

A descriptive research design was conducted to achieve the study.

Setting:

This study was conducted in a pediatric outpatient child clinic in Minia university hospital in Minia City.

Sampling: A Convenient sample was used in this study.

Sample size: The total number of children in one year, from January 2021 to the end of December 2021, was 300 children with cerebral palsy in the pediatric outpatient's child clinic at Minia University Hospital in Minia City; the sample size calculation was done based on power analysis Herbert Equation.

$$n = \frac{p(1-p)}{(SE \div t) + [p(1-p) \div N]}$$

$$N = 300$$

$$t = 1.96$$

$$SE = 0.05$$

$$P = 0.50$$

$$0.50 (1-0.50)$$

$$n =$$

$$(0.05 \div 1.96) + [0.50(1-0.50) \div 300]$$

$$n = 200$$

Inclusion criteria:

- Mothers who have children with cerebral palsy.
- Mothers who accept to participate in the study.
- Mothers who attend regularly.

Exclusion criteria:

- Mothers who refused to participate in the study.

Tools of Data Collection:

Data for this study collected by using the following one tool include:

Tool: An interview questionnaire:

Data for this study collected by using a questionnaire sheet which designed by the investigator after reviewing related literature it included five parts:

Part I: Demographic characteristics of the studied mothers and their children, consisted of 11 items as: mothers' age, marital status, educational level, ...etc.

Part II: Past medical history consisted of 5 closed ended questions as taking medication during pregnancy, exposure to x-ray during pregnancy, ...etc.

Part III: Mothers' knowledge about CP: it developed by the investigator after extensive national and international (20; 21 & 22) which included 16 closed-end questions as meaning, predisposing factors during children, the perinatal and postpartum, types of functional cerebral palsy, types of cerebral palsy in terms of areas of injury in the child's body, problems associated with cerebral palsy in children, ...etc.

A scoring system included 16 questions: the answer score was 2 points for the complete correct answer, 1 point for an incomplete correct answer, and zero points for the wrong correct answer.

The total scores for the mother's knowledge regarding cerebral palsy are divided into three levels as follows:

- Poor knowledge < 50 % (< 16 score)
- Average knowledge 50 -70 % (16:22 score)
- Good knowledge > 70% (> 22 score).

Part IV: Mothers reported practice to assess mothers' practices toward caring for children with CP. It was developed by the investigator after an extensive literature review of national and international (23; 22; 24) which include 7 items close

end question (71 items) (Q1 – Q71) as feeding (22 items), suitable position (8 items), exercise (9 items), difficulty swallowing (17 items), difficulty speaking bathing (5 items), and care during the seizure (10 items).

Scoring system, each statement was assigned a score according to mother's response were "Done", and "Not Done", and were scored 2 and 1 (Done 2, Not Done 1) respectively. The total score was 142 grades for 71 items.

The scores of items are summed up and then converted into percentage scores, as the following:

- Satisfactory reported practice equal (≥ 60), (≥ 85 points).
- Unsatisfactory reported practice equal (< 60), (≤ 85 point).

Part V: Mothers' attitude scale: The mother-child relationship evaluation (MCRE) scale. It was developed by Wang (1996), designed to assess parental attitude's normal and problematic aspects, and translated by the investigator to Arabic. The MCRE consists of 4 subscales, 12 items each: acceptance, overprotection, overindulgence, and rejection (25) (Amiri et al., 2019). Mothers were asked to rate their agreement or disagreement with each item based on a 5-point Likert scale after translating to Arabic languages (26)

Scoring system, responses were scored on a five-point Likert scale from 1 (strongly disagree) 2 (disagree), 3 (neutral), 4 (agree), and 5 (strongly agree). To get the total score, the scores of the items are added total score was 240 grades for 48 items.

The total score of each item was summed up and then converted into a percentage score. As the following:

- Positive Attitude equal (≥ 60), (≥ 58 point).
- Negative Attitude equal (< 60), (≤ 58 point).

Tool validity and Reliability:

A) Content Validity:

The revision of the tools for clarity, relevance, comprehensiveness, understanding, and applicability was done by a panel of five experts from the community health nursing specialty at Helwan and El-Minya Universities to measure the content validity of the tools and the necessary modification done accordingly through add some question to assess mothers' perception towards their children suffering from cerebral palsy. All recommended modifications were applied.

B) Tool Reliability:

Reliability was applied for testing the internal consistency of the tool, by administration of the same tools to the same subjects under similar conditions two times. Answers from the repeated testing were compared Test- re- test reliability was 0.82 for knowledge, attitude and reported practices and Cronbach's Alpha reliability was 0.890 for practice.

Ethical consideration:

An official permission to conduct the proposed study was obtained from the Scientific Research Ethics Committee, the faculty of nursing, Helwan University Participation in the study is voluntary, and the informed consent and acceptance of the director of Minya University Hospital. The ethical considerations include explaining the purpose and nature of the study, stating the possibility to withdraw at any time, and confidentiality of the information where it was not accessed by any other party without taking permission of the participants. Ethics, values, culture, and beliefs are respected. Subjects were given complete full information about the study and their role before signing.

II) Operational item:

1) Preparatory phase:

It included reviewing related literature and theoretical knowledge of various aspects of the study using books, articles, internet, and magazines to develop tools for data collection.

2) Pilot study:

The pilot study was done on 10% of the sample equal 20 mothers to examine the clarity of questions and time needed to complete the study tools. Based on the results, no modification was made. Mothers in the pilot study were included in the main study sample because no modifications were made.

3) Field work:

A written approval letter obtained from the Dean of faculty of nursing, Helwan University for practice the study in the faculty of nursing. Written letter should be sent to the director of the El-Minya University Hospital for conducting the study including the aim of the study to obtain permission to visit the hospital and conduct the study, including the aim of the study, obtained from mothers after the investigator introduces her to them and after explaining the purpose of the study.

The investigator collected data 2 days per week, (Tuesday and Wednesday) to identify the number of mothers visiting the clinics and her child diagnosed with cerebral palsy. Then, mothers who matched the inclusion criteria and were willing to participate in the study were interviewed mothers' formal acceptance to be included in the study was obtained, after explaining the purpose and the nature of the study.

The investigator divided the mothers and met from 8 to 9 mothers / per day on (Tuesday and Wednesday) for 6 months.

The interviewing questionnaire was collected for about 20 minutes according to mothers 's tolerance and every mother was allowed to ask any question to clear any misunderstanding and to fill out the interviewing questionnaire. Regarding this sheet,

every interviewing questionnaire was given to the mothers at the beginning of the work after an explanation of the purpose and gave them time to answer these questions.

III) Administrative Item:

After an explanation of the study's aim and objectives, official permission was obtained from the Dean of the faculty of nursing and the general director of the El-Minya University Hospital asking for cooperation and permission to conduct the study.

IV) Statistical Item:

Upon completion of data collection, data was computed and analyzed using Statistical Package for the Social Science (SPSS), version 24 for analysis. The P value is set at 0.05. Descriptive statistics tests as numbers, percentages, and mean standard deviation (SD), will be used to describe the results. Appropriate inferential statistics such as the "F" test or "t" test are used as well.

- Degrees of Significance of the results were:
- Non-significant (NS) if $p > 0.05$.
- Significant (S) if $p < 0.05$.
- Highly significant (HS) if $p < 0.01$.

Result:

Table (1): Shows that, 46 % of the studied mothers had 30 -<40 years, and 90 % were married. Regarding the educational level of the studied mothers, the study results proved that 30 % of them had a preparatory and secondary level moreover, 80% them were housewives.

Regarding monthly family income, 80 % of the studied mothers hadn't enough, and the same percentage came from rural areas. None of them had another child affected with cerebral palsy in the family.

Table (2): Shows that there is no statistically significant correlation between mothers' knowledge, reported practices, and attitude towards their children suffering from cerebral palsy.

Table (3): Presents that there were highly statistically significant differences between mothers' total knowledge and their age, level of education, and occupation where P. value equals 0.0001.

Table (4): Shows that there were highly statistically significant differences between mothers' reported practices and their age, level of education, and occupation where the P. value equals 0.0001.

Table (5): Shows that there were statistically significant differences between mothers' total attitudes and their age, marital status, level of education, occupation, family monthly income, and residence where the P. value equals 0.0001.

Figure (1): Shows that 50% of the studied mothers had poor knowledge about cerebral palsy. Also, 30% of them had average knowledge about cerebral palsy. While 20% of them had good knowledge about cerebral palsy.

Figure (2): Clears that, 88% of the studied mothers had unsatisfactory reported practice regarding cerebral palsy, while 12% of them had satisfactory reported practice.

Figure (3): Illustrates that 67 % of the studied mothers had a negative attitude regarding cerebral palsy while 33 % of them had a positive attitude.

Table (1): Number and Percentage Distribution of the Studied Mothers according to Demographic Characteristics (n=200).

Items	No	%
Age		
• 20 - < 30	44	22.0
• 30-< 40	92	46.0
• 40 -50	64	32.0
Mean ± SD 36.4 ± 8.1 years		
Marital Status		
• Married	180	90.0
• Divorced	20	10.0
The mothers' educational level		
• Primary	40	20.0
• Preparatory	60	30.0
• Secondary	60	30.0
• University	40	20.0
Occupation		
• Employed	40	20.0
• Housewife	160	80.0
Family monthly income		
• Not enough	160	80.0
• Enough	40	20.0
Residence		
• Rural	140	70.0
• Urban	60	30.0
Is there another affected child in the family		
• Yes	0	0.0
• No	200	100.0

Table (2): Correlation between Studied Mothers’ Knowledge, Reported Practices, and Attitude towards Children Suffering from Cerebral Palsy.

		Total knowledge	Total reported practice	Total attitude
Total knowledge	r	1	0.106	0.022
	P value		0.134	0.758
Total reported practice	r	0.106	1	0.008
	P value	0.134		0.907
Total attitude	r	0.022	0.008-	1
	P value	0.758	0.907	

Table (3): Relation between the Studied Mothers’ Demographic Characteristics & Total Knowledge towards Children Suffering from Cerebral Palsy (N=200).

Demographic characteristics	Poor (n= 120)		Average (n = 60)		Good (n= 20)		X ²	P – value
	No.	%	No.	%	No.	%		
Age / year								
• 20 - < 30	28	63.63	8	18.18	4	9.09	11.391	.030*
• 30-< 40	85	92.39	5	5.43	2	2.17		
• 40 -50	58	90.62	4	6.25	2	3.12		
Marital Status								
• Married	155	86.1	20	11.1	5	2.8	19.558	.001**
• Divorced	14	70.0	4	20.0	2	10.0		
Mothers Educational level								
• Primary	40	100.0	0	0.00	0	0.00	24.239	.000**
• Preparatory	60	100.0	0	0.00	0	0.00		
• Secondary	55	91.7	5	8.3	0	0.00		
• University	35	87.5	5	12.5	0	0.00		
Occupation								
• Employed	32	80.0	7	17.5	1	2.0	18.274	.000**
• Housewife	150	93.75	10	6.25	0	0.00		
Family monthly income								
• Enough	35	87.5	5	12.5	0	0.00	20.199	.000**
• Not enough	150	93.75	10	6.25	0	0.00		
Residence								
• Rural	130	92.85	8	5.71	2	1.43	21.177	.000**
• Urban	56	93.4	2	3.3	2	3.3		

Table (4): Relationship between the Studied Mothers' Demographic Characteristics and Reported Practice towards Children Suffering from Cerebral Palsy (n = 200).

Demographic Characteristics	No.	Total Reported Practice level				Test of significance	
		Unsatisfactory (n= 176)		Satisfactory (n = 24)		X ²	P-Value
		No.	%	No.	%		
Age							
• 20 - < 30	44	41	93.2	3	6.8	28.491	0.0001**
• 30-< 40	92	90	97.8	2	2.2		
• 40 -50	64	45	70.3	19	29.7		
Marital Status							
• Married	180	158	87.8	22	12.2	0.084	0.772
• Divorced	20	18	90.0	2	10.0		
The mother's educational level							
• Primary	40	40	100.0	0	0.0	115.365	0.0001**
• Preparatory	60	60	100.0	0	0.0		
• Secondary	60	73	91.3	7	8.8		
• University	20	3	15.0	17	85.0		
Occupation							
• Employed	40	18	45.0	22	55.0	87.547	0.0001**
• Housewife	160	158	98.8	2	1.3		
Family monthly income							
• Enough	40	30	75.0	10	25.0	2.309	0.129
• Not enough	160	146	91.3	14	8.7		
Residence							
• Rural	140	121	86.4	19	13.6	1.091	0.296
• Urban	60	55	91.7	5	8.3		

Percentage calculated by raw **statistically significant differences at ≤ 0.01.

Table (5): Relation between the Studied Mothers' Demographic Characteristics & Attitude towards Children Suffering from Cerebral Palsy (n= 200).

Demographic Characteristics	No.	Total attitude level				Test of significance	
		Negative (n= 66)		Positive (n = 134)		X ²	P – Value
		No.	%	No.	%		
Age							
• 20 - < 30	44	39	88.6	5	11.4	83.400	0.0001**
• 30-< 40	92	22	23.9	70	76.1		
• 40 -50	64	5	7.8	59	92.2		
Marital Status							
• Married	180	48	26.7	132	73.3	Fisher	0.0001**
• Divorced	20	18	90.0	2	10.0		
The mothers 'educational level							
• Primary	40	40	100.0	0	0.0	Fisher	0.0001**
• Preparatory	60	26	43.3	34	56.7		
• Secondary	60	0	0.0	80	100.0		
• University	20	0	0.0	20	100.0		
Occupation							
• Employed	40	0	0.0	40	100.0	Fisher	0.0001**
• Housewife	160	66	41.3	94	58.8		
Family monthly income							
• Enough	40	9	22.5	31	77.5	21.482	0.0001**
• Not enough	160	57	35.6	103	64.4		
Residence							
• Rural	140	55	91.7	5	8.3	133.428	0.0001**
• Urban	60	11	7.9	129	92.1		

Percentage calculated by raw **statistically significant differences at ≤ 0.01 .

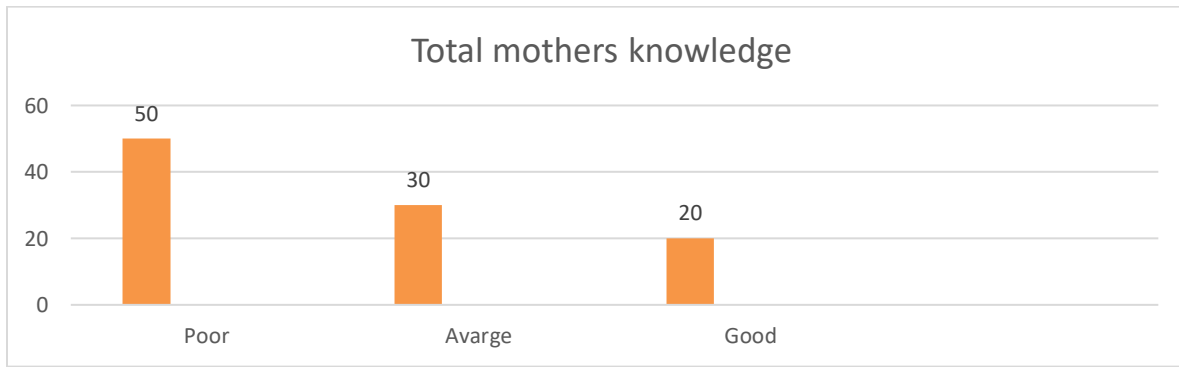


Figure (1): Percentage Distribution of the Studied Mothers' total Knowledge level Regarding Child with Cerebral Palsy (n = 200).

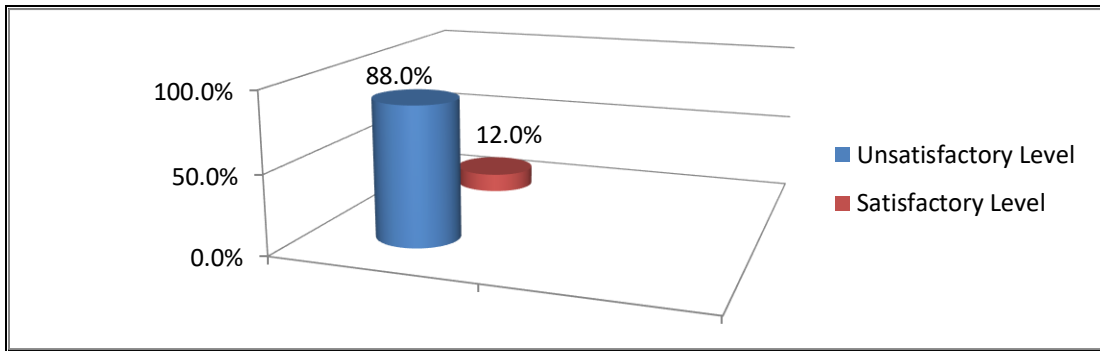
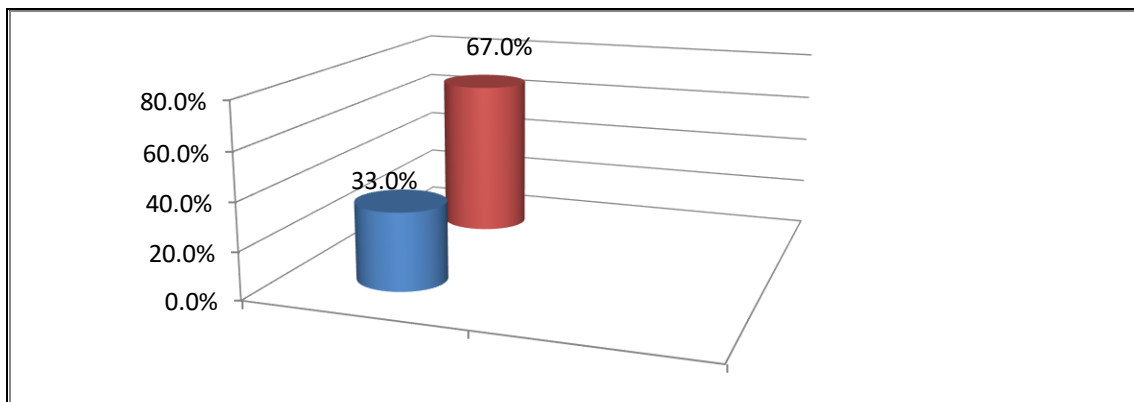


Figure (2): Percentage Distribution of the Studied Mothers' Total Reported Practice Regarding Child with Cerebral Palsy (n = 200).



67 % negative attitude and 33 % positive attitude

Figure (3): Percentage Distribution of the Studied Mothers' Total Attitude Level Regarding Child with Cerebral Palsy (n = 200).

Discussion

Cerebral palsy (CP) is the most common physical disability in childhood. CP comprises a heterogeneous group of disorders resulting from a non-progressive disruption or injury during fetal brain development or within the first two years of life. CP is caused by damage or abnormal development in the parts of the brain that control movement. These events can happen before, during, or shortly after birth or in the first few years of life, when the brain is still developing (6). Mothers as caregivers do not fulfill their roles due to a lack of understanding of children's physical, psychological, emotional, and social needs. Mothers like to help children and sometimes form help groups and arrange friendships and events. Children generally receive little support from relatives, friends, and neighbors (27).

Part (1): Demographic characteristics of the studied mothers and their children

Concerning mothers' age, the present study concerning that, less than half of studied mothers had aged from 30-< 40 years and this result was in agreement with **Perveen et al., (2023)** who conducted a published study in the Philippines entitled "knowledge and care among mothers having children with Cerebral Palsy in Bacolod City", who reported that, 45.6 % of studied subjects were aged from 30-< 40 years. From the investigator's point of view, this might be due to the mothers at this age's risk for low birth weight, malnutrition, not breastfeeding, overcrowded conditions, unsafe drinking water and food, and poor hygiene practices, and that increased risk for cerebral palsy children (28).

Regarding the marital status of the studied mothers, the current study shows that the majority of the studied mothers were married, and this result was in agreement with **Mahmoud & Sabea (2020)** who conducted a published study in Iraq entitled "Dietary counseling programs for mothers of children with

cerebral palsy". who reported that 89.9 % of the studied subjects were married. From the investigator's point of view, this might be due to the large number of samples being more than 30 years old (29).

The present study result revealed that less than one-third of the studied mother's education levels were preparatory and secondary school. This result disagreed with **Salih et al., (2022)** who conducted a published study in Saudi Arabia entitled "The Level of Awareness and Attitude toward Cerebral Palsy among parents in Al-Baha City", who reported that 43.2 % and 37.5 % of the studied subject's education levels were preparatory or secondary school, respectively. From the investigator's point of view, this might be due to most mothers with low socioeconomic status and education requiring a large budget (30).

Concerning mothers' occupation, the present study revealed that, more than two-thirds of studied mothers were housewives this result was similar to **Warmbrodt (2019)** who conducted a published study in England entitled " Knowledge about child nutrition with cerebral palsy" conducted that cross-sectional study directed among the people with cerebral palsy in England and who founded that, 69.1 % participants had not work. From the investigator's point of view, this might be due to most of the mothers with low socioeconomic status and education required a large budget and a large number of samples were preparatory and secondary education (31).

The present study results revealed that more than one-third of the studied mothers were residents of rural areas. This result was in accordance with **Yusuf (2022)**, who conducted a published study in Washington entitled as " Nutritional interventions for children with special health care needs" which reported that 35.5 % of the studied subjects were residents in rural areas. From the investigator's point of view, this might be due to rural women managing agricultural activities as paid laborers or cultivators

doing labor on their land. Rural properties tend to be more spacious and are far more likely to have gardens, making them ideal for those raising growing families. Countryside residents have nature and wildlife all around them, making it far easier to get back to basics and get back in touch with what matters (32).

The present study result revealed that more than two-thirds of studied mothers' family monthly income is not enough. This result was in accordance with **Panahi et al., (2022)** who conducted a published study in the Middle East entitled " The effects of the continuous care model on mental health in mothers of children with cerebral palsy in, the Middle East" who reported that, 78.2 % of studied subjects' family monthly income not enough. From the investigator's point of view, this might be due to women continuing to be underrepresented in high-level, highly paid positions and overrepresented in low-paying jobs. Women of color and transgender children experience particularly high levels of poverty, unemployment, and other economic hardships (33).

Concerning child age, half of the child had 3- < 4 years and more than half of them were males, and this finding was in agreement with **Hegazy & Mekhamier (2022)**, who conducted a published study in England entitled " The effect of self- learning package on mothers of children with cerebral palsy " who reported that 50.1% and 58.8 % of studied subjects were 3- < 4 years and were males, respectively. From the investigator's point of view, this might be because boys are four times more likely to have cerebral palsy diagnosis than girls. The average age of diagnosis in girls is four years old, in comparison to a little over three years old for boys (34).

Regarding children rank, more than one-third of the children were first ranked this finding agreed with **Warmbrodt (2019)** who conducted a published study in Russia entitled " Cerebral palsy, neurodiversity, and equality beyond the normal." who reported that 35.9

% of the children had first ranked. From the investigator's point of view, this might be due to children with cerebral palsy at a young age, economic and social obstacles are causing them to have fewer children than women want (31).

The present study result revealed that one hundred percent of the studied subjects' child educational stage was under school age. This result was in accordance with **El Tallawy (2022)**, who conducted a published study in Egypt entitled " Epidemiology of cerebral palsy in El-kharga district-new valley in Egypt" who reported that 58.2 % of the studied subjects' child educational stage was under school age. From the investigator's point of view, this might be due to the economic and social obstacles that are causing them to have fewer children than they want. Since children would normally be expected to provide for their parents in their old age, having a large family was often the only way to provide for their future (35).

Part II: Studied Mother's Knowledge of cerebral palsy (This part answered research hypothesis Q1: What is the knowledge of mothers about cerebral palsy towards their children suffering from cerebral Palsy?):

Also, concerning the studied mothers' total knowledge level regarding cerebral palsy, the present study revealed that half of the studied mothers had poor knowledge about cerebral palsy this finding was supported by **Perveen & Sarwar (2023)**, who conducted a published study in Nigeria under the title of " The effect of supportive educational intervention for mothers of Female Adolescents with Cerebral Palsy on Their Caring Practices in Nigeria " who reported that, 50 % of studied mother's had poor knowledge about the cerebral palsy. From the investigator's point of view, this might be due to CP related to abnormal development of the brain or damage that happened before or during birth is called congenital CP. The majority of CP 85 % – 90 % is

congenital. In many cases, the specific cause is not known (28).

Part III: Reported practice of the studied mothers about cerebral palsy (This part answered research hypothesis Q2: What are the reported practices of mothers towards their children suffering from cerebral Palsy?):

Also, concerning the studied mothers' total reported practice regarding cerebral palsy, the present study revealed that the majority of the studied mother's unsatisfactory with reported practice regarding cerebral palsy this result was supported by Ghazi saeedi et al., (2022), whose conducted published study in Australia under title of " The effect of an android-based application on the knowledge of the caregivers of children with cerebral palsy " who reported that, 90 % of studied sample's had unsatisfactory reported practice about the cerebral palsy. From the investigator's point of view, this might be due to indicate that families with children with cerebral palsy are prone to psychological issues such as depression, isolation, and stress; moreover, families have social challenges such as relationship challenges, divorce, and bankruptcy (36).

Part IV: Attitude of the studied mothers about cerebral palsy (This part answered research hypothesis Q3: What is the attitude of mothers towards their children suffering from cerebral Palsy?):

Also, concerning the studied mothers' total attitude regarding cerebral palsy, the present study revealed that more than two-thirds of the studied mothers' negative attitude regarding cerebral palsy this finding was supported by Khalil et al. (2022), whose published study in Egypt under title of " The quality of care provided to children with cerebral palsy in Alexandria, Egypt " who reported that, 68.1 % of studied sample's had negative attitude about the

cerebral palsy. From the investigator's point of view, this might be due to a child with cerebral palsy suffering from other illnesses, apart from the disability. Thus, when compared to parents of typically developing children, parents of children with CP experience greater stress, lower psychological well-being, and worse physical health (37).

Part V: Correlation & Relation between the Studied Variables (This part answered research hypothesis Q4,5: Is there a relation between mothers' knowledge, reported practices, and attitude towards their children suffering from cerebral Palsy? Is there a correlation ship between the mothers' demographic characteristics and their knowledge, practices, and attitude towards their children suffering from cerebral Palsy?):

The present study clarified that there statistically significant relation was between total knowledge and age, level of education, and occupation, and this result supported by Smith & Blamires (2022), who conducted a published study in Berlin under the title " Mothers' experiences of having a child with cerebral palsy " who reported that, there was a significant and direct relation between total knowledge and their age, level of education, and occupation. From the investigator's point of view, this might be due to a targeted educational sample being needed middle educational level and not work but housewife. They may be more likely to have depression or anxiety or show behaviors that other people find difficult or upsetting (38).

The present study clarified that there statistically significant relation was between total mothers' reported practices and their age, level of education, and occupation, and this finding supported by Mohamed & Aranda (2019), who conducted a published study in Saudi Arabia under the title " The perception of disability among mothers living with a child with cerebral palsy in Saudi Arabia " who

reported that there was a significant and direct relation between total reported practices and their age, level of education, and occupation. From the investigator's point of view, this might be due to women's rise in education, educated mothers pass on to their children not only their cognitive ability and financial resources, but also aspirations, values, and educational know-how, all of which help bolster their children's educational status (39).

The present study clarified that there is no statistically significant correlation between mothers' knowledge, reported practices, and attitude toward their children suffering from cerebral palsy, and this finding was supported by **Amiri et al., (2019)**, who conducted a published study in Saudi Arabia under the title "Mothers' knowledge, practices and total attitude level regarding cerebral palsy " who reported that there was no statistically significant correlation between studied samples' knowledge, practices, and attitude. From the investigator's point of view, this might be due to the mother being the most essential figure of attachment in a child's life from the beginning. A child's physical and emotional growth is dependent on their bond with their parents. When parents are absent or do not spend time with their children, their emotional development and behaviors suffer (26).

Conclusion

Based on the results of the present study and research question the following conclusion includes:

Most of the studied mothers had poor total knowledge about children with cerebral palsy, also most of them had satisfactory total practice regarding children and more than two-thirds of the studied mothers had negative attitudes about cerebral palsy. There is a relation between mothers' knowledge, practices, and attitudes towards their children suffering from cerebral Palsy. There is a statistically

significant relation between mothers' sociodemographic data and their knowledge, reported practices, and attitudes regarding their children with cerebral palsy.

Recommendations

In the light of the result of this study, the following recommendations were suggested:

1. Design health education programs for mothers and design booklets about cerebral palsy which include all information about cerebral palsy for children.
2. Design posters and put them in the outpatient clinic of cerebral palsy that would help mothers improve their knowledge, attitude, and reported practice of cerebral palsy regarding their children.
3. Encourage mothers to have group discussions regarding cerebral palsy to exchange knowledge, practice, and attitude about cerebral palsy under observation from a community health nurse.

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