
EFFECT OF AN EDUCATIONAL PROGRAM ON MOTHERS' CARE FOR THEIR CHILDREN WITH CEREBRAL PALSY AND ITS EFFECT ON THEIR QUALITY OF LIFE

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Abstract:

Background: Cerebral palsy (CP) is a group of permanent and non-progressive disorder of movement and posture caused by a central nervous system lesion, damage or dysfunction originating early in life so, educating caregivers important to improve their practices and consequences children QOL. **Aim of study:** Evaluate the effect of an educational program on mothers' care for their children with cerebral palsy and its effect on their quality of life. **Methods:** A quasi-experimental design was used including 50 mothers having cerebral palsy children. The tools of data collection were mothers and child assessment sheet that constructed by the researcher and Cerebral palsy quality of life questionnaire. **Results:** The results showed significant improvement in mothers' knowledge and reported practice regarding care of their children with CP, and also showed slightly improvement in children's quality of life after program implementation. **Conclusion:** There was a positive effect of the educational program in improving mothers' knowledge & reported practice regarding CP and slightly improvement related to children's quality of life. **Recommendation:** Continuous educational programs should be provided for mothers of cerebral palsy children about care of their children in order to improve their quality of life. Nurses in the physiotherapy clinic, outpatient clinic, and pediatrics department should trained well and supplied with information and training CP program as they are the main source of the mothers' information during providing the child by needed care.

Key words: Cerebral palsy, Knowledge, Practice & Quality of life

Introduction

Cerebral palsy is one of a number of neurological disorders that appear in infancy or early childhood and permanently affect body movement and muscle coordination but don't worsen over time. Even though cerebral palsy affects muscle movement, it isn't caused by problems in the muscles or nerves (1) Cerebral palsy is one of the most common causes of physical disability in childhood, with a reported prevalence of approximately 1.5–3 per 1,000 live

births. The overall estimated prevalence rate of CP internationally is placed between 1.0 to 2.3 per 1000 live births (2). It was found that 52 of 25,540 children in Al-Karga District, Egypt, had CP, giving a prevalence of 2.04 per 1,000 live births. The Mean age of children with CP, was 7.17±4.38 years. In the United States, approximately 10,000 infants are diagnosed with CP each year, and 1200–1500 are diagnosed at preschool age (3).

The order of frequency of different subtypes of CP was as follows, 65.4% had spastic type, 26.9% mixed type and 3.8% for each ataxic and dyskinetic types of CP (4). Cerebral palsy is a static neurologic condition resulting from brain injury that occurs before cerebral development is complete. Because brain development continues during the first two years of life, cerebral palsy can result from brain damage occurring during the prenatal, perinatal, or postnatal periods (5). About 70 - 80 percent of cerebral palsy cases are acquired prenatally and from largely unknown causes. Neonatal risk factors for cerebral palsy include birth after fewer than 32 weeks' gestation, birth weight of less than 2,500g, intrauterine growth retardation, intracranial hemorrhage and trauma (6). In about 10 to 20 percent of pediatric, cerebral palsy is acquired postnatally, mainly because of brain damage from bacterial meningitis, viral encephalitis, hyperbilirubinemia, motor vehicle collisions, falls, or child abuse (7).

Early signs include the delayed milestones such as controlling head, rolling over, sitting without support, crawling, or walking. Symptoms of cerebral palsy could include spasticity, poor muscle tone, uncontrolled movements, and problems with posture, balance, coordination, walking, speech,

swallowing, seizures, breathing problems, mental retardation, learning disabilities skeletal deformities, eating difficulties, drooling, dental problems, bladder and bowel control problems, digestive problems, hearing and vision problems (8).

Symptoms manifested by the mother during pregnancy may also suggest the possibility of cerebral palsy in the infant. Severe proteinuria late in pregnancy, maternal bleeding and vaginal bleeding during the sixth to ninth months during pregnancy are linked to higher risk of cerebral palsy affecting the child. Mothers with seizures are also more likely to have a child with cerebral palsy. Seizures in the newborn child may also indicate cerebral palsy (9).

The type and severity of cerebral palsy differ from one child to another, and may even change in an individual over time. Some children with cerebral palsy also have other medical disorders, including mental retardation, seizures, impaired vision or hearing and abnormal physical sensations or perceptions. Cerebral palsy doesn't always cause profound disabilities, while one child with severe cerebral palsy might be unable to walk and need extensive, lifelong care, another with mild cerebral palsy might be only slightly awkward and require no special assistance (8). The

predominant types of motor impairment are spastic, dyskinetic (Athetoid), ataxic and mixed(10).

There is no cure for CP, however, therapy, education and technology can enhance the children's life by improving their functional abilities (11). Early identification of CP, development of appropriate intervention programs and the use of a multidisciplinary team approach have been found to be of great benefit to the children diagnosed with CP and are also strongly linked to later success in their school and in general life. Current interventions used for CP include physiotherapy, speech therapy, occupational therapy, orthotic devices, behavioral therapy, surgery as well as alternative therapies, such as massage therapy (12).

A good educational program will encourage the open exchange of information, offer respectful and supportive care, encourage partnership between parents and the health care professional they work with, and acknowledge that although medical specialists may be the experts, parents who know their children best. Addressing the needs of parents and caregivers is also an important component of the treatment plan (13).

Interventions for CP should be directed at maximizing the quality of life by improvement in daily

function and reduction of the extent of disability. Initially, the parents and other caregivers should learn how to seat, dress, feed, and communicate with, transfer, transport, and toilet the child. With growth and development, the child should achieve maximal independence in these activities (14).

Nursing management focuses on prompting growth and development, promoting mobility and maintaining optimal nutritional intake. Providing support and education to the child and family is also an important nursing function in addition to nursing diagnosis and related intervention discussed in nursing care plan and interventions common to care for a child with cerebral palsy (15)

Quality of life for children with cerebral palsy refers to subjective well-being focuses on the health related component of life satisfaction such as self-care, mobility and communication. Assessment of quality of life reflects personal evaluation of daily experience and resonates with other subjective outcome, such as, life satisfaction, sense of coherence and self concept (16).

The World Health Organization looks at four major categories when evaluating quality of life for children with cerebral palsy, physical health and independence as energy and fatigue, pain and discomfort, sleep

and rest, mobility, dependence, and productivity, ability to self-care, earn an income, and perform activities of daily living, psychological well-being, spirituality and personal beliefs as self-perception, self-image, and self-esteem, cognitive ability to think, learn, remember and concentrate, influence of religious beliefs, spirituality and personal beliefs, social relationships as relationships with others, socialization and sexual activity, environmental factors as safety, security, housing, mobility, freedoms and independence, access, inclusion, and participation. Opportunities to learn, develop skills, participate in recreation, leisure interests and employment (17).

Aim of study

Evaluate the effect of an educational program on mothers' care for their children with cerebral palsy and its effect on their quality of life through:

- 1- Assess the mothers' knowledge and reported practice regarding care of their children with cerebral palsy.
- 2- Assess quality of life of children with cerebral palsy.
- 3- Design, implement and evaluate program for mothers to improve their care and quality of life of their children with cerebral palsy.

Materials and method

Materials:

Design: Quasi-experimental design was utilized in this study.

Setting of the study: The study was carried out in the In-patient department of Neurology and Neurology Out-patient clinic at Mansoura University Children's Hospital (MUCH).

Subjects: A Convenient sample of 50 mothers who are attending to the out-patient and in-patient departments regardless their characteristics and having children with cerebral palsy.

Tools of Data Collection:

Data was collected through the use of the following two tools.

Tool I:-

Interviewing questionnaire which consists of two parts:

Part (1)

- Characteristics of children with cerebral palsy (as child's age, gender, birth order and family member) and their mothers (as age, educational level, occupation and consanguinity of parents).
- Medical history of children with cerebral palsy (as problems at birth, types of disease, movement ability and difficulties related to illness)

- Medical history of mothers of children with cerebral palsy (as maternal diseases, prenatal and natal problem, hereditary disease in the family, having another sibling with cerebral palsy or another child with CP in the family).

Part (2)

- Assessment of mothers' knowledge regarding cerebral palsy (definition, causes, signs and symptoms, complications, investigation, prevention, treatment...).
- Assessment of the mother's reported practice regarding care of their children (feeding, drinking, dressing, movement

Scoring system of knowledge and reported practice

Mothers knowledge and reported practice will be checked with a model key answer where their answers will be classified into either correct (2 scores), incomplete correct (1 score) and incorrect/ don't know (zero score). Then the mothers' total knowledge and reported practices will be categorized into satisfactory (50% and more) and unsatisfactory (less than 50%).

Tool II:-

Cerebral palsy quality of life scale for children (CP- QOL-child).

Developed by the International Multidisciplinary Team of Clinical

and Child Health Researcher, with collaboration with parents and children with cerebral palsy (**Waters et al., 2013**). The scale for children with cerebral palsy aged 4 to 12 years (CP QOL- child). It will include Parent – proxy version (for parent of children aged 4to 12 years), comprising 65 items.

Scoring the CP QOL- Child

Items are transformed to a scale with a possible range of 0-100. The scores for every time range from 1-5, the following formula must be used: If person scored 1, recode to 0, If person scored 2, recode to 25, If person scored 3, recode to 50, If person scored 4, recode to 75, If person scored 5, recode to 100

Method:

I- Administrative design:

An official permission was obtained from the Director of Mansoura University Children's Hospital (MUCH); and the Head of Pediatric Neurological Department of Mansoura University Children's Hospital (MUCH) to conduct the study.

Ethical considerations:

Ethical approval was obtained from the Research Ethics Committee of Faculty of Nursing Mansoura University. The researcher was obtained the approval oral consent from each mother for her participation after explaining the aim of the study and securing confidentiality of data.

The mothers were able to withdraw from the study at any time without any responsibilities.

II- Operational Design:

Preparatory phase:

- Review of related literature covering various aspects of children having cerebral palsy and their mothers. This was done using available books, articles, journals and internet search to be acquainted with previous and current literature and to develop relevant tools for data collection.
- Study tools were tested for its content validity by five expertise in the field of the study to ensure content validity of the tools and necessary modification was done.
- The developed tools were tested for their reliability using alpha cronpach's test, the alpha reliability was 0.87.

A pilot study

- A pilot study was carried out to test the study tools: it was conducted on 10% of the total sample size in order to evaluate the research plan, clarity of tools and its applicability. Mothers in the pilot study were excluded from the study.

Field work

- Data collection of this study was carried out over a six months period that started from the beginning of January 2015 to the end of June 2015. The purpose of the study was explained by the researcher to each mother. The

researcher was available in morning and/or afternoon shifts for data collection and data was collected 3 days/ week.

Assessment phase:

- This phase included assessment of the knowledge, reported practice of the studied mothers and quality of life of children with CP through using the developed tools

planning phase:

- Based on the findings of the assessment and review of literature, the educational program was developed. The program was given in five sessions, (two theoretical and three practical sessions). The time for each session was varied from 45 to 60 minutes. Mothers were divided according to their availability and attendance at the previously mentioned setting, and their children's diagnosis and type of CP. Various teaching methods were used in the form of group discussion, demonstration and re-demonstration. Various teaching media were used, such as data show, handout guidelines regarding CP care for their children. This program was conducted in/ out patient department.

Implementation phase:

- Assess the effect of the educational program for mothers

care for their children having cerebral palsy.

The educational Program

It was designed by the researcher after reviewing the related literature. The program was included knowledge and reported practices for mothers regarding care of their children with cerebral palsy.

Statistical Analysis:

The raw data were coded and entered into SPSS system files (SPSS package version 18). Analysis and interpretation of data were conducted. The following statistical measures were used:

- Descriptive statistics including frequency, distribution, means, standard deviation were used to describe different characteristics.
- Kolmogorov – Smirnov test was used to examine the normality of data distribution.
- Univariate analyses including: paired t-test was used to test the significance of results of quantitative variables. Marginal Homogeneity test was used to test the significance of results of qualitative variables.
- Linear correlation was conducted to show correlation between the mother's total knowledge, total reported practice about cerebral palsy, mothers' characteristics and quality of life for their children before and after program

implementation using Pearson correlation coefficient and Spearman Rho correlation coefficient.

- The significance of the results was at the 5% level of significance.

Results:

Table (1) shows the socio-demographic characteristics of the studied children with cerebral palsy. It was clear from this table that, more than one third of children (38.0 %) were in the age group of 10 to less than or equal to 12 years with a mean age of 8.1 ± 2.6 years. More than half of children (58.0 %) were males while the rest of them (42.0%) were females. Regarding the order of the children in the family, it was found that less than half of them (42.0%) were ranked as the first child, while about one third (32%) of them were the second child.

Table (2): shows the socio-demographic characteristics of the studied mothers. It was observed that, almost half (48.0%) of the studied mothers were in the age group from $35 \leq 40$ years while the minority of them (2.0%) was in the age group from 20 to less than 25 years. Regarding mothers' educational level, the current study revealed that, more than one third (44.0%) of them had secondary education. Also, the majority of mothers were housewives and had no consanguinity of parents as

cleared by 88.0% & 80.0 % of them respectively while, the minority of them (12.0%) was employee and workers.

Table (3): Represents mothers' knowledge regarding cerebral palsy pre and post educational program implementation. It was observed that, there were highly statistically significance differences in all aspects of the disease (definition, causes, symptoms, complications, investigations, prevention and treatment). Regarding complications, about two thirds (62.0%) of the studied mothers were having incorrect knowledge which improved significantly post program to 50.0% incomplete correct & 44.0% complete correct answer. As regard to prevention, almost three quarts (74.0%) of the studied mothers were having incorrect knowledge which improved significantly post program to 48.0% incomplete correct & 48.0% complete correct answers.

Table (4): Revealed that, there was improvement post educational program implementation for some aspects of the children's needs (as feeding, wearing clothes, excretion, playing, and communications). Most of children (86.0%, 82.0%, and 82.0%) were dependent on their mothers regarding bathing, hair combing and teeth brushing respectively pre program implementation while improved

post program to 8.0%, 12.0% & 12.0 % of them became independent & to 22.0%, 12.0% & 10.0% of them became partially dependent respectively. Regarding feeding, playing, and communications pre educational program, they had representing 44.0%, 40.0% & 42.0% of the studied children were dependent on their mothers and improved post program to 30.0%, 56.0% & 50.0% of them became independent & to 54.0%, 34.0% & 36.0% of them became partially dependent respectively.

Table (5): It was clear from this table that, there was a significant correlation between the mothers' total knowledge score & access to services, where $r = 0.346$, $p = 0.014$ post educational program implementation. Also there is a significant negative correlation between the mothers' total knowledge score & pain and impact of disability, where $r = 0.328$, $p = 0.02$ post program implementation. On the other hand, there is a strong stable significant correlation between mothers' total reported practice score and quality of life domains pre and post educational program implementation except two domains (Pain and impact of disability & access to services).

Figure (1): show that, there were a statistical significant improvement in quality of life of

children with CP regarding to social wellbeing and acceptance (P=0.001*), Physical wellbeing & Functioning (P<0.0001*), Emotional wellbeing and self esteem (P=0.014*), Access to services (P<0.0001*), pain and impact of disability (P=0.002*) after program implementation as compared to mean scores pre program.

Table (1): Distribution of the Studied Children regarding to their Socio-Demographic Characteristics n=50

Socio- Demographic Characteristics	Studied Children	
	No.	%
Age (years)		
4-<6	11	22
6-<8	13	26
8-<10	7	14
10- <12	19	38
Mean ±SD	8.1±2.6	
Sex		
Male	29	58
Female	21	42
Order		
First	21	42
Second	16	32
Third	12	2
Fourth	1	2
Family members		
2-3	4	8
4-5	39	78
6-7	7	14

Table (2): Distribution of the Studied Mothers regarding to their Socio-Demographic Characteristics n=50

Socio-demographic characteristics	Studied Mothers	
	No.	%
Age (years)		
20 - < 25	2	4
25 - < 30	11	22
30 < 35	13	26
35≤40	24	48
Mean ±SD	34.6±7.4	
Educational level		
Illiterate & read and write	8	16
Primary /preparatory education	11	22
Secondary education	22	44
Higher education	9	18
Mothers work		
Employee and worker	6	12
Housewife	44	88
Consanguinity of parents		
Yes (cousins)	10	20
No	40	80

Table (3): Distribution of the Studied Mothers' Knowledge regarding Cerebral Palsy Pre, and Post Educational Program Implementation n= 50

Knowledge Items	Pre program						Post program						Significance
	Incorrect		Incomplete Correct		Complete Correct		Incorrect		Incomplete Correct		Complete Correct		
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	
Definition	12	24	34	68	4	8	1	2	21	42	28	56	P<0.0001*
Causes	14	28	36	72	0	0	1	2	22	44	27	54	P<0.0001*
Symptoms	5	10	33	66	12	24	1	2	15	30	34	68	P<0.0001*
Complications	31	62	18	36	1	2	3	6	25	50	22	44	P<0.0001*
Investigations	29	58	18	36	3	6	5	10	18	36	27	54	P<0.0001*
Prevention	37	74	13	26	0	0	2	4	24	48	24	48	P<0.0001*
Treatment	7	14	39	78	4	8	2	4	15	30	33	66	P<0.0001*

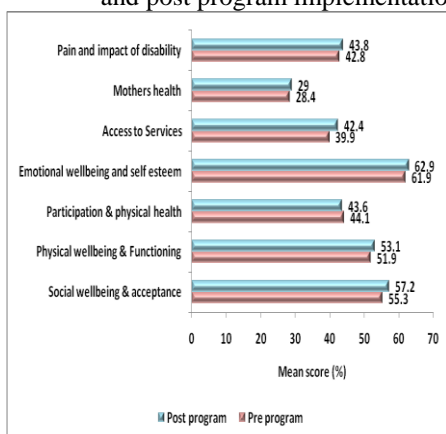
Table (4): Distribution of the Studied Mothers' Reported Practice Regarding Care of their Children pre, and post Educational Program Implementation

Reported Practice items	Pre program						Post program						Significance
	Dependent		Partially dependent		Independent		Dependent		Partially dependent		Independent		
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	
Feeding	22	44	17	34	11	22	8	16	27	54	15	30	0.009*
Movement	14	28	15	30	21	42	6	12	21	42	23	46	0.117
Walking	30	60	8	16	12	24	22	44	16	32	12	24	0.142
Wearing clothes	39	78	7	14	4	8	18	36	28	56	4	8	0.0001*
Bathing	43	86	4	8	3	6	35	70	11	22	4	8	0.121
Hair combing	41	82	5	10	4	8	38	76	6	12	6	12	0.739
Teeth brushing	41	82	4	8	5	10	39	78	5	10	6	12	0.882
Excretion	33	66	11	22	6	12	11	22	30	60	9	18	0.0001*
Playing and sports activities	20	40	11	22	19	38	5	10	17	34	28	56	0.002*
Sleep	16	32	13	26	21	42	7	14	20	40	23	46	0.078
Communication with others	21	42	10	20	19	38	7	14	18	36	25	50	0.006*

Table (5): Correlation between the Mothers Total Knowledge, Total Reported Practice & Quality of Life for Children with Cerebral Palsy Pre and Post Educational Program Implementation.

CP- QOL-child	Total Knowledge				Total Practice			
	pre program		post program		pre program		post program	
	r	P	r	P	r	P	r	P
1-Social wellbeing & acceptance	0.143	0.321	0.272	0.056	0.449	0.001*	0.453	0.001*
2-Physical wellbeing & Functioning	-0.014	0.926	0.126	0.382	0.516	<0.0001*	0.533	<0.0001*
3-Participation & physical health	-0.02	0.890	0.277	0.052	0.573	<0.0001*	0.549	<0.0001*
4- Emotional wellbeing and self esteem	0.027	0.854	0.272	0.056	0.375	0.007*	0.413	0.003*
5- Access to Services	0.130	0.369	0.346	0.014*	0.012	0.936	0.017	0.907
6- Mothers health	-0.127	0.381	0.212	0.139	0.463	0.001*	0.465	0.001*
7- Pain and impact of disability	0.058	0.688	0.328	0.02*	0.192	0.182	0.252	0.077

Figure (1): Scores of quality of life of children with cerebral palsy pre and post program implementation



Discussion:

Cerebral palsy (CP) is a group of permanent movement disorders that appear in early childhood. Children with CP usually have problems with poor coordination, stiff muscles, weak muscles, trouble swallowing or speaking, and tremors among others. There may also be problems with sensation, vision, and hearing. Difficulty with the ability to think or reason and seizures each occurs in about one third of cases. While

the symptoms may get more noticeable over the first few years of life, the underlying problems do not worsen over time (18)

According to characteristics of the studied children, the current study revealed that, more than half of children were boys while the rest of them were girls. This finding was in an agreement with (19) in his study of coping parents toward their child with cerebral palsy, there high percent for boys than girls and contradicting with (20) who mentioned that cerebral palsy occurs in both sexes equally.

Regarding to the type of cerebral palsy, the current study finding showed that, about two thirds of studied children had spastic cerebral palsy and less than half of those children had spastic quadriplegia. This finding was similar to the view of (4) who showed that quadriplegia, considered to be the most severe form of motor impairment arising from CP and was the` most common subtype of spastic CP (72.5%). Also, it is in agreement with (21) who mentioned that, the numbers of children with spastic CP were always more than the ataxic and dyskinetic types.

The present study revealed that, about two thirds of children have history of convulsion. This is in agreement with (22) who emphasized that one half of children with cerebral palsy

demonstrate seizure activity. This finding could be explained by the facts that, the majority of the studied children had spastic cerebral palsy and this type characterized by convulsions.

As regard the studied mother's characteristics, the findings of the present study revealed that, the majority of the studied mothers had secondary education and housewives. This result was disagree with (23) who found that the majority of mothers were illiterate and house wives and the educated mothers had more information, better practice and had positive attitude than illiterate mothers. On the other hand, this study was in agreement with (24) who stated that the majority of the studied mother had basic secondary education. This can be explained by the cultural differences that may affect the level of education.

In the current study the majority of mothers reported that the expenses of treatment and physiotherapy sessions were the major difficulties in financial problems and about more than half of mothers stated that the appearance and behaviors of children with CP are not accepted by the others. This result was supported by (25), who stated that, more than two thirds of parents complain from financial cost and unwilling to talk about their children with others and less than

half of mothers of CP children are reluctant to take their child to the public. This finding could be explained by the facts that the presence of poverty and low income contribute to this problem.

Assessing mothers' level of knowledge regarding cerebral palsy, It was found that, most of the studied mothers (82%) had unsatisfactory level of knowledge about CP pre program while the majority of them (92%) had satisfactory level of knowledge post implementation of educational program,. This is in agreement with (26) who stated that the minority of mother's had satisfactory knowledge regarding their children with cerebral palsy and its intervention before program implementation. However, after program implementation, considerable improvement was detected as regards mother's knowledge which could be attributed to the frequent explanation, adding to motivating those mothers by providing them with posters. This could be due to mothers' need of simple information to understand their children illness and how to deal with it. Also there were no nurses available in some institution whose the major part of their responsibilities is to provide health education for pediatric patients and their parents.

The majority of mothers have an unsatisfactory total score level of practice regarding activities of daily living for their children pre program compared to more than two thirds (87%) of them satisfactory post program implementation. This is supported by(27)who found the majority of mothers of CP children may be unable to take care of their disabled children regarding activities of daily living as feeding, drinking, hygiene & toileting) due to deficit knowledge and practice regarding caring of CP child, so daily care is considerable a basic or complementary part of child rehabilitation program. This is may be due to the fact that the researcher taught each mother individually about daily care, let them demonstrate most of care techniques in front of the researcher.

Regarding physical wellbeing and functioning, there were minimal improvements post program implementation related to child's ability to use toilet, to dress themselves, and to eat and drink independently with no statistically significant differences. This result disagree with (28)who stated that there were highly significant improvements in items related to child using their arm, legs, way to sleep, and ability to use toileting after program compared with before program. This may be due to

physical disability which interferes with the child's ability to achieve optimum physical well being.

There is no statistical significance differences related to pain and impact of disability post program implementation. This finding come in agreement with (29)who stated that, Pain is associated with poor quality of life in the physical and psychological well-being and self-perception domains. Parents with higher levels of stress were more likely to report poor quality of life in all domains, which suggests that factors other than the severity of the child's impairment may influence the way in which parents report quality of life

Finally, the results revealed that, there were a significant correlation between mothers' age & their total reported practice score pre and post educational program implementation. This study is in contraindicating with (30) who stated that, there no significant correlation between caregivers age ($p=.473$) and total knowledge scores or total practice scores ($p=.363$). This result proved that with increase age of mothers become more interested in how to gain knowledge that proves their caring of their cerebral palsy children.

Conclusion:

Based on the findings of the present study, it could be concluded that:

There was a positive effect of the educational program in improving mother's knowledge & reported practice regarding their children having cerebral palsy and slightly improvement related to children's quality of life.

Recommendation:

the findings of the current study recommended the following:

- Continuous educational programs should be provided for mothers of cerebral palsy children about care of their children.
- Teaching mothers different aspects of caring of their children having cerebral palsy to improve their quality of life.
- Provide mothers of children with cerebral palsy by updated pamphlets, posters and Arabic booklets about cerebral palsy.
- Mothers' wrong practice about caring of their children related to regularity of follow- up in physiotherapy unit for the child condition should be corrected through health teaching.
- Nurses should play a key role in the health teaching and counseling mothers about care of their children with CP.
- Nurses in the physiotherapy clinic, outpatient clinic, and pediatrics department should

trained well and supplied with information and training CP program as they are the main source of the mothers' information during providing the child by needed care.

- Mass media should emphasize the physical, psychological, social and financial needs and stressors of families of cerebral palsy children.

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