
Effect of an Educational Program about Cerebral Palsy Management on Mothers' Performance

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ABSTRACT

Aim: The study aimed to evaluate the effect of an educational program about cerebral palsy management on mothers' performance. **Design:** A quasi-experimental research design was used in conducting this study. **Subjects:** A consecutive sampling consisted of 50 mothers that were attending to physiotherapy clinic at genetic counseling center in Port Said city. **Setting:** The study was conducted in physiotherapy clinic at genetic counseling center in Port Said city. **Tools of data collection:** The data was collected by self-administer questionnaire, Mothers reported practices regarding care of their children. **Results:** Increased total knowledge of mothers to 94% in post intervention phase, while declined to 54% at follow up phase. Also improvement in the overall practices of the studied mothers throughout the program phases. **Conclusion:** Both the mothers' total knowledge score and their overall reported practices increased once the program was implemented. **Recommendations:** Continuous health education and counseling programs for mothers on the problems associated with cerebral palsy and how to dealing with it should be provided.

Keywords: Children, Cerebral palsy, Educational program, Mothers' performance.

INTRODUCTION

Cerebral palsy (CP) is a non-progressive, incurable disorder that affects children's mobility and posture and is caused by restricted movements in the growing fetus or immature infant's brain. Cerebral palsy affects children in a variety of ways, including chronic pain, spasticity, sensory disruptions, vision and language issues, as well as digestive issues and malnutrition. They also face numerous obstacles in performing self-care duties, including eating, changing clothes, moving, and bathing, which can result in long-term care requirements greatly surpassing those of typical children (Baiee, Al Doori & Hassan, 2019).

Cerebral palsy is a chronic neurological illness caused by injury to the brain that occurs before it has fully developed. Because the brain continues to grow during the first two years of life, cerebral palsy can result from a brain injury sustained during the prenatal, perinatal, or postnatal period. For unexplained reasons, 70-80% of cerebral palsy cases are acquired prenatally. Delivery before 32 weeks of pregnancy, birth weight under 2,500 grams, intrauterine growth retardation, intracranial hemorrhage, and trauma are all risk factors for newborn cerebral palsy (Mahmoud, Ouda, Abusaad & Hashem, 2016).

Head control, tipping over, sitting without support, crawling, and walking are all delayed milestones. Spasticity, poor muscle tone, uncontrolled movements, and issues with posture, balance, coordination, walking, speaking, swallowing, seizures, breathing problems, mental retardation, learning disabilities, bone deformities, difficulty eating, drooling, and teething are some of the symptoms of cerebral palsy. Disorders with bladder control, bowel control, digestion, hearing, and vision are all examples of bladder problems (Centers for Disease Control and Prevention, 2021).

Types of movement difficulty (spasticity, dyskinesia, ataxia, dystonia) or the body portion affected are used to classify cerebral palsy (hemiplegic, diplegic, and quadriplegic). Gross motor skills, fine motor skills, and communication were all considered in the final severity categorization (Gao et al., 2017).

There is no standard treatment for children with CP, therefore the focus is on prevention, symptom management, and support. Physical therapy, occupational therapy, speech therapy, behavioral therapy, medication, and surgery are some of the most common therapies. Children with CP who have mobility abnormalities become self-

sufficient and are typically cared for at home by their parents, particularly mothers. They require daily support with activities like as feeding, washing, dressing, handling, stimulation, medical treatment, and specific exercise (Nanjundagowda, 2018).

Mothers of children with CP are at significantly greater risk of psychological distress and mental health problems as they balance caregiving and other responsibilities (Marquis, McGrail, & Hayes, 2020). Nursing care for children with CP includes providing adequate nutrition, maintaining skin integrity and safety, providing emotional support for children and their parents, promoting growth and development and teaching parents how to care for the child. Health education for mothers who are responsible for monitoring the child's treatment regimen should focus not only on health and disease management but should include coping skills training as well (Hashem & Abd El Aziz, 2018).

Significance of the study:

In both developed and developing countries, the prevalence of cerebral palsy is around 1.5-3 per 1,000 live births. As a result of this finding, cerebral palsy is the most common cause of impairment in children (Mohamed, 2021). Mothers are crucial in the early detection and monitoring of growth trends in children with cerebral palsy. They require guidance on how CP-related conditions may impair or alter children's daily activities (such as eating, sleeping, dressing, playing, and using the toilet). As a result, the goal of this study was to see how a cerebral palsy education program affected mothers' performance in regard to their children with cerebral palsy.

AIM OF THE STUDY:

The study aim was to evaluate the effect of an educational program about cerebral palsy management on mothers' performance through:

- Assess mothers' knowledge about cerebral palsy management.
- Assess mothers' reported practices regarding care of their children with cerebral palsy.
- Design and implement an educational program suitable for mothers of children with cerebral palsy.
- Evaluate the effect of an educational program about cerebral palsy management on mothers' performance.

Research hypothesis:

Mothers' performance in caring for their children with cerebral palsy is expected to be improved after implementing the educational program.

Subjects and Method:

1- Technical Design

This design includes a description of the study design, study setting, subjects, and tools of data collection.

Research design

A quasi-experimental research design was used in conducting this study.

Setting

The study was carried out in physiotherapy clinic at genetic counseling center that affiliated to the Directorate of Health Affairs in Port Said city.

Subjects

The study population consisted of 50 mothers that were attending to genetic counseling center in Port Said city regardless their age and educational level and had children with cerebral palsy for six months. The total number of mothers were calculated according to the following Sample size:

Sample size $(n) = N/1+N*d^2$ (Sharma et al, 2020)

N = Total population = 57 mothers

d = Margin of error or precision = 0.05

$n = 57/1+57* (0.05)^2 = 50$ mothers.

Sampling technique: A consecutive sampling technique was utilized to recruit mothers in the study sample.

Tools of data collection:

Tool I: Self-administer questionnaire: The researcher designed this questionnaire based on a survey of relevant literature. It is written in Arabic language to aid comprehension of the research topic. The tool is made up of the following components.

Part I: Characteristics of the studied mothers:

- **Mother characteristics:** It included questions such as age, education, work, housing, family income.

- **Mother's obstetric History:** This section has four questions about complications of pregnancy and labor.

Part II: Mothers' knowledge about cerebral palsy:

This is to assess the mother's knowledge at various stages of the intervention. It contains nine questions about cerebral palsy's definition, causes, signs and symptoms, related issues, diagnostic tests, and prevention methods.

Tool II: Mothers' reported practices regarding care of their children with cerebral palsy: It is adapted from Hill (2013) in English language and then translated into Arabic language. It included reported practices of mothers related to eating (13 steps), dressing (5 steps), dental care (7 steps), sleeping (6 steps), playing with a child (7 steps), communication skills (7 steps) and handling of child (4 steps).

Scoring system:

Mothers' knowledge about management of cerebral palsy and their reported practices were assessed using a scoring system. The following is the knowledge scoring system for the mothers that were tested:

The mothers' responses were assessed as follow, a score of (2) indicating an complete answer, (1) indicating an incomplete answer, and (0) indicating "I don't know the answer." The final score is derived by adding all of the scores together and then converted to a percentage. Mothers' total knowledge levels are classified into two categories: fewer than 60% are unsatisfied with their knowledge, and 60% and more are satisfied with their knowledge.

According to the reported practices of mothers, the steps of practices checked as done and not done, which (1) score was given for done and (0) was given for not done. The total score was calculated by summing up and converted into a percent score. Mothers' total level of reported practices has been classified as follows; inadequate reported practices for mothers who got scores less than 60%, adequate reported practices for mothers who got scores 60% and more.

2- Operational Design

The operational design includes preparatory phase, validity, reliability, pilot study, and fieldwork.

Preparatory phase

During this phase, the researcher reviewed local and international related literature using internet search, textbooks, and scientific journals. This helped in

increasing comprehension of the study topic and in the preparation of the data collection tools.

Validity:

The tools were sent to a panel of seven nursing and medical pediatric professionals for face and content validity. The tools then were adjusted based upon the recommendations of these experts. This preparatory phase lasted for three months.

Pilot study

After the research tool was developed and validated, and before the data collection phase began, a pilot study was done. It was carried out on around 10% of the total study group. The tool was modified based on the outcomes of the pilot study and the pilot mothers were not included in the main study sample, the pilot sample was limited to five mothers. The pilot study took ten days from May 2019 to June 2019.

Reliability of the tools:

Name of tool	No. of Items	Cronbach's Alpha
Mothers' knowledge about management of cerebral palsy	9	0.78
Mothers' reported practices	49	0.82
Total questionnaire	58	0.81

Fieldwork

This fieldwork was achieved through assessment, planning, implementation and evaluation phases.

Assessment phase:

This phase included preparation of the tools and assessment of the mothers' knowledge about management of cerebral palsy and their reported practices regarding care of their children with cerebral palsy before the program.

The researcher visited the study settings, met with the eligible mothers, explained to them the purpose of the study and maneuvers, and invited them to participate. After obtaining mother's consent, the researcher started the interview using the tool. This was

done individually and privately in the study setting according to the policy of the setting. It took approximately 35 to 40 minutes to complete the interview. The data collected constituted a pretest for baseline comparisons. It also helped in preparing the educational program based on identified needs.

Planning phase:

The researcher started to develop the educational program using the basic information that gathered in the assessment phase. As a result , the program was created based on the identified needs and demands of the mothers, and in the light of the most recent literature. It was written in simple Arabic language.

The program overall purpose was to improve mothers' knowledge about management of cerebral palsy and their reported practices regarding care of their children with cerebral palsy. The program involved educational materials to improve their knowledge regarding the definition of cerebral palsy, causes, clinical manifestations, diagnostic tests, methods of prevention and treatment. An illustrated Arabic-language booklet was prepared by the researcher in simple terms to be distributed to attendants by the end of the program.

Implementation phase:

The implementation of the program was done in physiotherapy clinic at genetic counseling center that affiliated to the Directorate of Health Affairs in Port Said city. The program was given in five sessions; the duration of each session lasting from 45 to 60 minutes. The sample of mothers was divided into 10 groups, each group included five members. At the beginning of the first session of the program, the mothers were oriented about the program aim, contents, and procedures. The program was implemented two days per week during a period of 6 months from January 2020 to June 2020.

The educational program was presented in a clear and plain form, following the principles of adult learning, focusing on interactive learning and active participation. It was implemented using different teaching methods such as short lectures, group discussion, demonstration of practices and re-demonstration. In addition, different audiovisual materials were used as pictures and videos to facilitate the teaching of each topic.

Evaluation phase:

The effectiveness of the program was based on assessing the improvement in mothers' knowledge about management of cerebral palsy and their reported practices. This was achieved through comparing the pretest with posttest immediately done after the implementation of the program, and the follow-up test carried out six months later.

3- Administrative Design

After describing the study aim and methods, an official letter from the University of Port Said Faculty of Nursing was sent to the Genetic Counseling Centre in Port Said city, and permission to perform the study was obtained.

Ethical considerations

Each mother was given a clear and simple explanation of the study's goal and procedures in order to get her informed consent to participate in the study. They were also advised that they had the right to refuse or withdraw at any moment, for any reason, and with no implications for their care.

4- Statistical Design

The SPSS 20.0 statistical program was used for data entry and statistical analysis. Calculate the Cronbach's alpha coefficient to determine the tool's internal consistency and thus its dependability. The chi-square test was used to compare qualitative category variables. To determine the link between quantitative variables, the Pearson correlation test was performed. To detect pre- and post-intervention differences in the same group, paired samples t-tests were utilized. A p-value of less than 0.05 was judged statistically significant.

RESULTS:

Table (1): shows that the age of the studied mothers ranged between 25-46 years with mean 34.4 ± 5.2 and more than two fifths (44.0%) of them had secondary educational level. Also 78% of them did not work and slightly less than two thirds (64%) of them had enough family income.

Table (2): Clarifies that less than half (42%) of the studied mothers had complications during pregnancy and 38.1% of them suffered from anemia. In relation to complications during labor, more than half (54%) of the studied mothers exposed to complications and the most common complication that they exposed to was bleeding.

As displayed in **figure 1**, only 12% of mothers in the study sample had total satisfactory knowledge before the intervention. This increased to 94.0% in the post-intervention phase, and declined to 54.0% at the follow-up phase.

Table (3): illustrates that, 22% of mothers had adequate reported practice related to feeding of their children with cerebral palsy in pre intervention phase and reaching to 96% in post intervention phase, while slightly declined to 84% in the follow up phase. Related to practice of clothing, 62% of mothers had adequate practice in pre intervention and 86% in post intervention phase and reaching to 82% in the follow up phase .

Concerning to dental care, 18% of mothers had adequate practice related to care of teethes of their children in pre intervention phase and this percent increase to 86% in post intervention phase then declined to 36% in follow up phase. Regards to care of children during sleep, minority (8%) of mothers had adequate practice regarding care of their children during sleep in pre intervention phase and reaching to 86% in post intervention phase, while this percentage declined to 66% in follow up phase.

Also **table 3** indicates generally low levels before the intervention. This was most evident regarding reported practice of communication skills, minority (8%) of mothers had adequate communication skills during care of their children with cerebral palsy in pre intervention phase and it improved to 78% in post intervention phase then declined to 18% in follow up phase.

In relation to reported practice regarding care of children during play, it was evident that 10% of mothers had adequate practice in caring of their children during play in pre intervention phase and it increased to 82% during post intervention phase then slightly declined to 76% in follow up phase. Regarding reported practice of handling children with cerebral palsy, less than one quarter (20%) of mothers had adequate practice for handling of their children in pre intervention phase and reached to 84% in post intervention phase, while decreased to 60% in follow up phase.

Table (4): shows that, there was statistically significant difference between pre and post total knowledge of mothers about cerebral palsy. Also there was statistically significant difference between pre and follow up total knowledge of mothers about cerebral palsy ($P < 0.05$).

Table (5): clarifies that, there was statistically significant difference between pre and post overall reported practices (feeding, clothing, dental care, sleep, play, communication skills and handling) of mothers about caring of their children with cerebral palsy. Also there was statistically significant difference between pre and follow

up overall practices of mothers about caring of their children with cerebral palsy ($P < 0.05$).

Table (6): demonstrates that, there was statically significant positive correlation between mothers' total score of knowledge and their overall reported practices about care of their children with cerebral palsy in pre intervention phase, while there was statically significant negative correlation between mothers' total score of knowledge in post, follow up phases and their overall reported practices in pre intervention phase ($P < 0.05$). Also table (6) clarifies that, there was statistically significant positive correlation between overall reported practices of mothers about care of their children in post intervention phase and their total score of knowledge about cerebral palsy in post and follow up phases.

Table (1): Percentage distribution of the studied mothers according to their characteristics (n=50)

Mother's characteristics	Frequency (n)	Percentage (%)
Age / years		
25 < 30	13	26.0
30 < 35	9	18.0
35 < 40	22	44.0
≥ 40	6	12.0
Min-Max	25-46	
Mean ±SD	34.4±5.2	
Median	35	
Educational level		
Illiterate	3	6.0
Preparatory education	6	12.0
Secondary education	22	44.0
BSc	15	30.0
Post graduate	4	8.0
Occupation		
Work	11	22.0
Not work	39	78.0
Residence		
Urban	43	86.0
Rural	7	14.0
Family income		
Enough	32	64.0
Not enough	18	36.0

Table 2: Percentage distribution of the studied mothers according to their obstetric history (n=50)

Obstetric history of mothers	n	%
Occurring complications during pregnancy:		
Yes	21	42.0
No	29	58.0
Complications during pregnancy(n=21):		
Placental complications	7	33.4
Renal colic	2	9.5
Early bleeding	2	9.5
Early contraction	2	9.5
Anemia	8	38.1
Occurring complications during labor:		
Yes	27	54.0
No	23	46.0
Complications during labor (n=27):		
Uterine rupture	2	7.4
Bleeding	14	51.9
Eclampsia	4	14.8
Obstructed labor	7	25.9

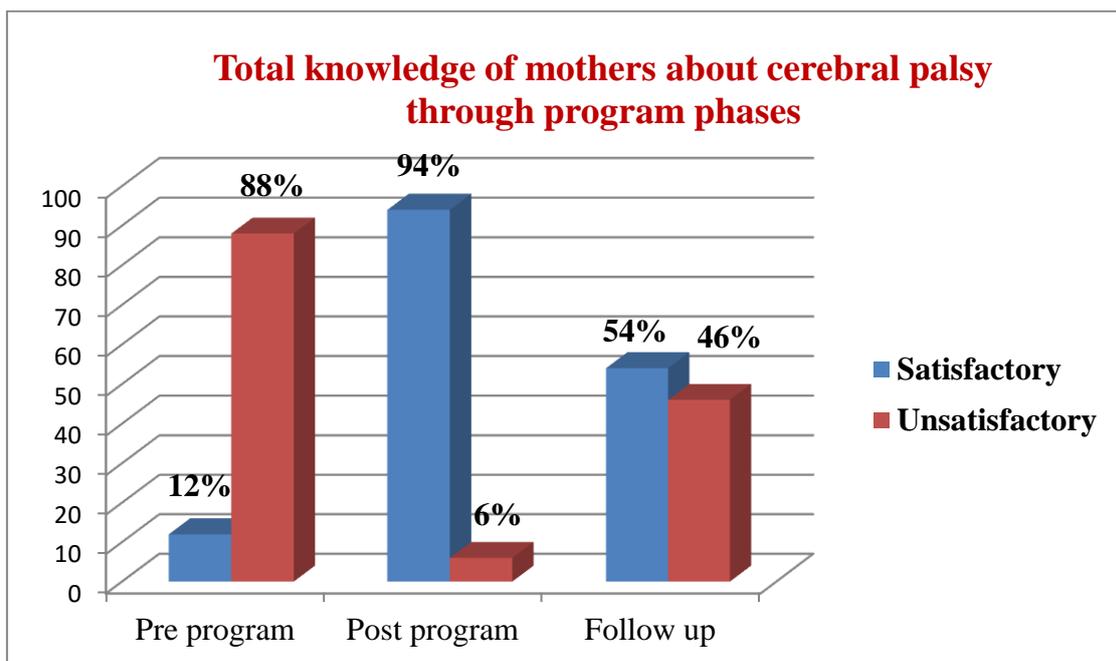
**Figure 1: Distribution of the studied mothers according to their total score of knowledge about cerebral palsy during phases of program (n=50):**

Table 3: Percentage distribution of the studied mothers according to their overall reported practices regarding care of their children with cerebral palsy through program phases (n= 50)

Mothers' overall practices	Time of program											
	Pre				Post				Follow up			
	Adequate		Inadequate		Adequate		Inadequate		Adequate		Inadequate	
	n	%	n	%	n	%	n	%	n	%	n	%
Practice of feeding	11	22.0	39	78.0	48	96.0	2	4.0	42	84.0	8	16.0
Practice of clothing	31	62.0	19	38.0	43	86.0	7	14.0	41	82.0	9	18.0
Dental care	9	18.0	41	82.0	32	64.0	18	36.0	18	36.0	32	64.0
Care of child during sleep	4	8.0	46	92.0	43	86.0	7	14.0	33	66.0	17	34.0
Care of child during play	5	10.0	45	90.0	41	82.0	9	18.0	38	76.0	12	24.0
Communication skills	4	8.0	46	92.0	39	78.0	11	22.0	9	18.0	41	82.0
Handling of child	10	20.0	40	80.0	42	84.0	8	16.0	30	60.0	20	40.0
Overall practices of mothers	9	18.0	41	82.0	47	94.0	3	6.0	40	80.0	10	20.0

Table (4): Percentage difference of the studied mothers' knowledge throughout the program implementation (n=50)

Item	Pre/ Post program				Pre / Follow up			
	Pre	Post	t	Sig	Pre	Follow up	t	Sig
	Mean±SD	Mean±SD			Mean±SD	Mean±SD		
Total knowledge of mothers about cerebral palsy	4.6±2.7	10.3±1.2	15.29	.000	4.6±2.7	8.9±1.1	12.29	.000

t- paired sample t test

Significant level (p< 0.05)

Table 5: Percentage difference in the studied mothers' reported practices throughout the program implementation (n=50)

Practices of mothers	Pre/ Post program				Pre / Follow up			
	Pre Mean±SD	Post Mean±SD	t	Sig	Pre Mean±SD	Follow up Mean±SD	t	Sig
Practice of feeding	5.9±2.1	10.2±1.6	10.97	.000	5.9±2.1	8.6±1.2	7.57	.000
Practice of clothing	2.7±0.9	4.4±0.7	11.09	.000	2.7±0.9	4.1±0.7	8.62	.000
Dental care	1.1±1.4	5.2±1.2	16.69	.000	1.1±1.4	4.1±0.9	14.69	.000
Care of child during sleep	1.9±1.2	4.6±0.9	12.08	.000	1.9±1.2	3.8±0.9	9.43	.000
Care of child during play	1.5±1.2	5.7±1.2	16.69	.000	1.5±1.2	4.9±0.9	15.60	.000
Communication skills	1.76±1.7	5.2±1.1	10.95	.000	1.76±1.7	3.9±0.9	8.39	.000
Handling of child	1.4±1.1	3.4±0.7	12.11	.000	1.4±1.1	2.8±0.8	10.32	.000
Overall practices of mothers	16.2±5.1	38.8±5.7	18.14	.000	16.2±5.1	32.8±3.9	16.65	.000

t- paired sample t test

Significant level (p< 0.05)

Table 6: Correlation between mothers' total knowledge and their overall reported practices pre, post and follow up after educational program (n=50):

Mothers' total score of knowledge	Mothers' overall reported practices score					
	Pre program		Immediately post		Follow up	
	r	p-value	r	p-value	r	p-value
Pre program	.289*	0.04	.235	.101	.134	.353
Immediately post program	-.296*	0.03	.784**	.000	.111	.442
Follow up	-.280*	0.04	.521**	.000	.128	.377

r- pearson correlation coefficient

Significant level (p< 0.05)

Highly significant

level (p< 0.01)

DISCUSSION:

Cerebral palsy (CP) is a neurodevelopmental condition caused by a problems in the infantile or fetal brain's development. It affects more than 17 million children around the world. Cerebral palsy can cause primary or secondary sensory, vision, and cognitive issues in addition to motor impairments, epilepsy, and musculoskeletal dysfunction, affect memory and communication (Khalil, Elweshahy, Abdelghani & Omar, 2018).

Mothers as caregivers of their children may not achieve their roles due to lack of understanding to the physical, psychological, emotional, and social needs of their child, so the aim of the study was to explore the effect of an educational program about cerebral palsy management on mothers' performance. The results generally indicate good response from mothers, with improvement in their knowledge and their overall practices.

Regarding to total knowledge score of mothers about management of cerebral palsy, the current study result showed that, minority of mothers had satisfactory total score of knowledge about cerebral palsy before intervention, while majority of them had satisfactory total knowledge after intervention and slightly declined in the follow up stage. This result may be attributed to the fact that more than half of the studied mothers had mild and moderate educational level, also due to very little information that received from the treating physicians. After the educational program, most of mothers become cooperative and more interested to learn everything about cerebral palsy to assist in the treatment of their children and participating in the decision making which reflect on improving their knowledge.

The current study result is supported by Afifi, Elsayied, Mekhemar and El-Khayat (2018) whose found in their study that, after program implementation, mothers had higher good score level than pre and follow up after program implementation, which highlights on the positive effect of intervention program on mothers' knowledge.

Moderately to severely affected children with CP most dependent on their mothers as main caregivers in applying their activities of daily living for their whole life

. So mothers of children with CP need more specific training to take care of their children and improving their quality of life (Moriwaki et al., 2022). As revealed by the current study result, most of the studied mothers had inadequate overall reported practices regarding care of their children with cerebral palsy in pre intervention phase. It may be related to most of mothers spend a long time for taking care (e.g., feeding, bathing, and clothing, sleeping and toileting) of their children and it leads to a significant

negative impact on the physical and mental health of mother, also this explained by the fact that one quarter of the studied mothers were working that makes them overloaded and tired.

Also after the educational program the majority of the studied mothers had adequate overall reported practices regarding care of their children with cerebral palsy and this may be due to the effective program that used simple language, pictures and allow mothers to demonstrate most of care techniques during the session of program. The current study result is supported by Rashad, EL-Dakhakhny, Abd Elsalam and Mohamed (2021) whose found that the total reported practice score of the studied mothers regard care of their CP children, nearly one quarter of studied mothers had satisfactory reported practices score before implementation of educational modules. This percentage increased to half after implementation of educational module.

As regards to total reported practices of mothers about feeding of their children with cerebral palsy, less than one quarter of mothers had adequate total practices about feeding of their children in pre intervention phase and increased to majority of them after program implementation. It may be attributed to the importance of feeding for maintaining the health of children from mothers point of view. Also mothers aware with the usual steps of feeding for children, but didn't know the steps that specific for cerebral palsy children that improve chewing and swallowing as putting food on the side of mouth and gently massage with circle motion on the child cheek.

The current study finding is in agreement with Zuurmond et al. (2018) who provoked that the feeding practices of mothers was improved after the training program.

Children with psychomotor impairment depend on their mothers to have their teeth brushed. However, not all mothers have enough knowledge concerning the importance of good oral hygiene (Rabello et al., 2021). The current study result found that most of mothers had inadequate practices regarding dental care of their children in the assessment phase. It may be attributed to most of mothers didn't visit dentist continuously because of financial cost and there was a lack of health teaching from health team. The promotion of educational actions for mothers and an efficient program can provide a better quality of life for these children and significantly improved mothers' practices.

The study findings are in congruence with Aburahma, Mhanna, Al- Mousa, Al-Nusair and Al Habashneh (2021) whose carried out a study in Jordan and reported that

children with CP have suboptimal oral hygiene habits, limited access to procedural dental care.

Participation in activities provides children with opportunities for enjoyment, relaxation, recreation, self-enrichment, and goal achievement. Children with Cerebral Palsy are often less active or irritable, so they need more attention from their mothers and an environment that facilitates play (Longo et al., 2020). The current study result revealed that, the minority of mothers had adequate practices regarding care of their children during play. This might be attributed to most of mothers considered cerebral palsy as a stigma and didn't want their children to play with others, also some of mothers afraid from bullying on their children. The study findings are supported by Mahmoud, Ouda, Abusaad and Hashem (2016) whose found that the practices of mothers regarding play of their children with cerebral palsy were unsatisfactory in pre implementation phase.

Communication problems that resulting from cerebral palsy can interfere in the socialization process of the child, so the mothers should be aware with two dimensions of communication to simplify relation with their children. Verbal communication which require the use of words and the speech for transmission of message and non-verbal communication which include gestures, body and facial expression (McFaad & Hustad, 2020).

The current study result showed that minority of mothers had adequate communication skills in pre intervention phase and this improved to most of them in the post and follow up phases. This may be due to the effect of educational program and most of mothers become aware with the two dimensions of communication skills as verbal and non- verbal communication that leads to improving their practices. This study findings is supported by Baraka, El-Sayed, ELShahawy and Farag (2019) whose study carried out in Egypt and reported that improvement in the level of mother's reported practices regarding speech improvement and communications skills as compared to pre implementation of the intervention program.

In general, the current study result revealed that, there was statistically significant positive correlation between mothers' knowledge and mothers' overall reported practices in pre intervention phase and there was statistically significant positive correlation between mothers' knowledge and their overall reported practices in post intervention phase. This result is expected because of increasing mothers' knowledge about cerebral palsy leading to improving their practices with their children.

The current study result is in congruence with Rashad, EL-Dakhakhny, Abd Elsalam and Mohamed (2021) whose found that there was statistically significant positive correlation between mothers' knowledge and mothers' practices regarding care of children with cerebral palsy.

CONCLUSION:

Based on the results of the current study, the study concluded that, There was improvement of mothers' total score of knowledge about management of cerebral palsy and their overall reported practices after program implementation. Also there was statistically significant positive correlation between mothers' total score of knowledge at post intervention phase and their overall reported practices at post intervention phase.

RECOMMENDATIONS:

Based on the results of the current study, the study recommended that:

- 1- Continuous health teaching and counseling programs for mothers on the problems associated with cerebral palsy and how to dealing with it should be provided to foster a healthy life for the child with cerebral palsy

REFERENCES:

Aburahma, S. K., Mhanna, A., Al-Mousa, S., Al-Nusair, J & Al Habashneh, R. (2021). Dental health status and hygiene in children with cerebral palsy: A matched case-control study, *Int J Paediatr Dent* ,31(6),752-759.

Afifi, A. A., Ragheb, S. G., Elsayied, H. A., Mekhemar, S. A & El-Khayat, H. A. (2018). An Intervention Program for Mothers Regarding Dependency Level of their Children with Cerebral Palsy, *Egyptian Journal of Health Care*, 9(2),1-14.

Baiee, Z. A., K, AL-Doori, N., M & Hassan, A. A. (2019). Mother's Knowledge Towards their Children with Cerebral Palsy in Babylon Province, *Indian Journal of Public Health Research & Development*, 10(10), 3898- 3903.

Baraka, N. I., El-Sayed, E. M., ELShahawy, E. K & Farag, N, H. (2019). Effect of Educational Intervention Program on Mothers, Knowledge and Practice about Quality of Life for Their Children with Cerebral Palsy, *IOSR Journal of Nursing and Health Science*, 8(2), 43-52.

Centers for Disease Control and Prevention (CDC)(2021). What is Cerebral Palsy, Available at: <https://www.cdc.gov/ncbddd/cp/facts.html>

Gao, J., Zhao, B., He, L., Sun, M., Yu, X & Wang, L (2017). Risk of cerebral palsy in Chinese children: A N:M matched case control study; *J Paediatr Child Health*,53(5),464–469.

Hashem, S. f. & Abd El Aziz, M. A. (2018). The Effect of Nursing Intervention on Stress and Coping Strategies among Mothers of Children with Cerebral Palsy; *International Journal of Nursing Didactics*, 8 (10), 1-17.

Hill, C (2013). *Information for parents, Cerebral palsy*, Available at: www.scope.org.uk/services/face-2-face-cymru.

Khalil, M., Elweshahy, H., Abdelghani, H & Omar, T(2018). Quality of care provided to children with cerebral palsy, Alexandria, Egypt; *East Mediterr Health J*,24(6),522-531.

Longo, E., Regalado, I., Galvão, E., Ferreira, H., Badia, M & Orgaz Baz, B (2020). I Want to Play: Children With Cerebral Palsy Talk About Their Experiences on Barriers and Facilitators to Participation in Leisure Activities, *Pediatric physical therapy: the official publication of the Section on Pediatrics of the American Physical Therapy Association*, 32(3),190-20.

Mahmoud, SH. M., Ouda, W. E., Abusaad, F. E & Hashem, S, F (2016). Effect of An Educational Program on Mothers' Care for Their Children with Cerebral Palsy and Its Effect on Their Quality of Life, *Mansoura Nursing Journal (MNJ)*, 3(2), 179-185.

Marquis, S. M., McGrail, K & Hayes, M. V. (2020). Mental health outcomes among parents of a child who has a developmental disability: Comparing different types of developmental disability, *Disability and Health Journal*,13(2), 1–8.

McFadd, E., D, & Hustad, K. C. (2020): Communication modes and functions in children with cerebral palsy, *Journal of Speech, Language, and Hearing Research*; Available at : https://doi.org/10.1044/2020_JSLHR-19-00228

Mohamed, H. I (2021). Cerebral Palsy in pediatrics: Review Article, *International Egyptian Journal of Nursing Sciences and Research (IEJNSR)*, 2(1),16-27.

Moriwaki, M., Yuasa, H., Kakehashi, M., Suzuki, M, & Kobayashi, Y (2022). Impact of social support for mothers as caregivers of cerebral palsy children in Japan, *Journal of Pediatric Nursing; Elsevier*, 63(1),64-71.

Nanjundagowda, V, K (2018). *Cerebral Palsy Management*; Available at: <https://www.researchgate.net/publication/300827860>

Rabello, F., Prado, H. v., Angelo, G. L., Martins, M. B., Carneiro, N. C & Borges-Oliveira, A, C (2021). Mothers of a Child with Cerebral Palsy: Perception on the

Diagnosis Moment and the Child's General and Oral Health, *Pesqui Bras Odontopediatria Clín. Integr*, 21(1),1-6.

Rashad, L. T., EL-Dakhakhny, A. M., Abd Elsalam, E. A & Mohamed, M (2021). Effectiveness of Maternal Training Program on Improvement of Care Provided to Their Children With Cerebral Palsy at Zagazig University Hospitals, *Zagazig Nursing Journal*, 17(1), 1-12.

Sharma, S. K ., Mudgal, Sh. K, Thakur, K & Gaur, R. (2020). How to calculate sample size for observational and experimental nursing research studies? *National Journal of Physiology, Pharmacy and Pharmacology,India*,10(1),1-8.

Zuurmond, M., O'Banion, D., Gladstone, M., Carsamar, S., Kerac, M., Baltussen, M., Tann, C., Nyante, G. G. & Polack, S (2018). Evaluating the impact of a community-based parent training programme for children with cerebral palsy in Ghana, *PLoS ONE* 13(9), 1-17.

تأثير برنامج تعليمي عن إدارة الشلل الدماغي على أداء الأمهات

الخلاصة

المقدمة: الشلل الدماغي هو إعاقة في النمو تبدأ في الطفولة المبكرة. **الهدف من الدراسة:** تقييم تأثير برنامج تعليمي عن إدارة الشلل الدماغي على أداء الأمهات. **التصميم:** تم استخدام تصميم بحث تقييمي شبه تجريبي لإجراء هذه الدراسة. **العينة:** كل الأمهات اللاتي ترددن على مركز الإرشاد الوراثي في مدينة بورسعيد لمدة 9 شهور وتشمل العينة الكلية على 50 أم . **النتائج:** نسبة قليلة من الأمهات محل الدراسة كانت لديهن درجة إجمالية مرضية من المعرفة في مرحلة ما قبل البرنامج التعليمي وارتفعت إلى 94% في مرحلة ما بعد البرنامج وانخفضت إلى 54% في مرحلة المتابعة. كما تحسنت الممارسات العامة للأمهات محل الدراسة خلال مراحل البرنامج من 18% في مرحلة ما قبل البرنامج إلى 94% في مرحلة ما بعد البرنامج وتراجعت إلى 80% في مرحلة المتابعة. **الخلاصة:** هناك تحسن في الدرجة الإجمالية للأمهات من حيث المعلومات والممارسات الإجمالية بعد تنفيذ البرنامج. كما كانت هناك علاقة سلبية ذات دلالة إحصائية بين مجموع درجات المعلومات للأمهات في مرحلة ما بعد البرنامج والممارسات الإجمالية في مرحلة ما قبل البرنامج. **التوصيات:** استمرار تقديم برامج تعليمية وإرشادية للأمهات خاصة الأميات حول المشكلات المصاحبة للشلل الدماغي وكيفية التعامل معها لتعزيز حياة صحية للطفل المصاب بالشلل الدماغي.

الكلمات المرشدة: الأطفال، الشلل الدماغي ، برنامج تعليمي، دور الأم.