

## Effectiveness of Health Educational Program on Mothers' Awareness regarding Care for Children with Cerebral Palsy at Benha City

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### Abstract

**Background:** Cerebral palsy is the most common cause of physical disability in children and responsible for permanent activity limitation. Mothers are expected to be extensively care giver of children with cerebral palsy at home. **Aim of the study:** Was to evaluate the effectiveness of health educational program on mothers' awareness regarding care for children with cerebral palsy. **Research design:** Quasi-experimental study design was utilized in the study. **Setting:** The study was conducted at Neurology Pediatric Outpatient Clinics in Benha University Hospital, and Children Specialized Hospital in Benha City. **Sample:** Purposive sample of 125 mothers having children with cerebral palsy. **Tools of data collection:** Three tools were used in this study. **Tool I:** A structured interviewing questionnaire was used to assess **a):** Mothers socio-demographic characteristics and personal characteristics of the studied children with cerebral palsy, **b):** Medical history of the studied children with CP, **c):** Mothers' knowledge regarding cerebral palsy. **Tool II:** It was concerned with mothers' practices regarding care for children with cerebral palsy. **Tool III:** It was concerned with measuring the attitude of mothers regarding cerebral palsy. **Results:** 8% of the studied mothers had good knowledge about cerebral palsy at pre-program and improved to 85.6% at post program implementation. However, 39.2% of the studied mothers had satisfactory total practices at pre-program compared to 69.6% at post program. 31.2% of the studied mothers had positive attitude regarding cerebral palsy at pre-program compared to 79.2% at post program. **Conclusion:** The health educational program succeeded to improve mothers' awareness regarding cerebral palsy. **Recommendations:** Further studies should be conducted for large sample to improve mothers' knowledge, attitude, and practices for proper dealing with their children with cerebral palsy.

**Keywords:** Cerebral palsy, Children, Mothers' awareness.

### Introduction

Cerebral Palsy (CP) is a neuromuscular disorder caused by non-progressive impairment to the fetal or infant brain during the early stages of development. It refers to a group of developmental disorders that affects the development of movement, posture and causes activity limitations. The motor disorders of CP are often accompanied by disturbances of sensation, perception,

cognition, communication, and behavior (Friedman et al., 2022).

Cerebral palsy is the most common cause of physical disability in children. CP is classified to spastic CP of all cases and was classified into a diplegia, hemiplegia, monoplegia, or spastic quadriplegia, ataxic and dyskinetic CP, and mixed type. CP is diagnosed in the first 18 months of life for most children when they fail to attain the

motor milestone or when they show specific abnormal signs such as asymmetric gross motor functions, hypertonia or hypotonia. Movements and posture problems are present in all CP children (Al-Sowi et al., 2023).

The risk factors of CP are heterogeneous, multi factorial and only partially understood. When looking at the risk factors, traditionally within the context of CP, they are considered by likely timing of exposure "prenatal, perinatal" (around the time of birth, usually from 28<sup>th</sup> week of pregnancy until 7<sup>th</sup> day of life) or postnatal. The brain development begins in the first 3 week of gestation and makes further important steps during the first 2 years of life, in particular in the first 12-15 months, so CP can result from brain injury occurring during the prenatal, perinatal or postnatal periods (Khan et al., 2022).

Mothers play a huge role in lives of children with CP, providing care and love, and so much more. Children with CP most often are presented with multiple impairments, activity limitation and participation restriction. Disabilities associated with cerebral palsy affect children's independence. Mothers are involved in self-care activities such as bathing, dressing and grooming, which can be difficult for children with CP. Mothers of children with CP perform range of motion exercise to promote movement and minimize risk of contractures. Routine skin care is also important for children with CP with limited movement, also mothers is responsible for maintaining good nutritional status for CP child and observe any abnormalities in health condition (Smith & Blamires, 2022).

Community Health Nurses provided care to CP children and their families through assessing the patient depending on the severity of the patient's impairment through counseling mothers on issues related to treatment completing, providing education

directed towards the prevention of side effects, and bring resources assist with independence. The nurse should collaborate with others healthcare providers to assess the patient's ability to perform daily living activities. Primary prevention of CP occurs through health promotion and education for mothers about the importance of antenatal care during pregnancy to prevent the onset of the disease. Secondary prevention through early detection and treatment of the disease, and tertiary prevention aims to halts the progression by effective treatment or rehabilitation (Draz & Elsharkawy, 2021).

### **Significance of the Study**

Cerebral palsy is occurring in approximately 2-2.5 of 1000 live births globally. It affects from 8,000 to 10,000 infants and 1200 to 1500 preschool aged children each years. CP prevalence in Egypt is 2.9- to 3.6 per 1000 live birth. CP appeared to be more prevalent in low income or middle income countries than in high income countries (Magdy & Abd-Elmagid, 2021).

### **Aim of the Study:**

The aim of this study was to evaluate the effectiveness of health educational program on mothers' awareness regarding care for children with cerebral palsy at Benha City

### **Research hypothesis:**

Knowledge, attitude and practices of the mothers having CP children will be improved after implementation of health educational program.

### **Subjects and Method:**

**Study design:** A quasi-experimental study design was utilized to conduct the study.

### **Research Setting:**

The present study was conducted at Neurology Pediatric Outpatient Clinics in Benha University Hospital, and Children Specialized Hospital at Benha City.

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### **Sampling:**

A purposive sample of mothers having children with CP attended to the previous setting. The total numbers of children with CP attending to the previous setting are 500 children which divided into 144 children in Benha University Hospital, and 356 children in Children Specialized Hospital. The sample included 25% of children with CP in the previous mentioned setting equal 125. The sample was chosen according to following criteria:

- Preschool children with CP

### **Tools of data collection:**

**Tool (I):** A structured interviewing questionnaire was developed by the researchers and was consisted of three parts:

**First part:** Included two sections:

**A-Socio-demographic characteristics** of the studied mothers having preschool children with CP such as age, educational level, social status, occupation, residence, family number, and monthly income

**B-Personal characteristics** of the studied children with CP such as sex, age and child ranking.

**Second part:** concerned with medical history of the studied children with CP and included four sections

**Third part:** It was concerned with knowledge of mothers having children with CP about CP pre and post program implementation and included 12 questions.

### **Scoring system:**

A scoring system for mothers' knowledge was calculated as follows 2 for correct complete answer, while 1 for correct incomplete answer and 0 for don't know. For each section of knowledge, the total scores of the items were summed up and the total divided by the number of the questions, which converted into a percent score.

**The total score for all questions 24 and categorized into three levels as following:**

- **Good knowledge**→ when the total score was  $\geq 75\%$  ( $\geq 18$ points)

-**Average knowledge** → when the total score was 50% to less than 75% ( $12 > 18$ points)

-**Poor knowledge**→ when the total score was less than 50% ( $< 12$  points)

**Tool (II):** It was concerned with mothers' reported practices regarding care for children with CP such as feeding consisted of 7 steps, mobility and development milestone consisted of 7 steps, oral care consisted of 3 steps, dealing with convulsion consisted of 6 steps, elimination care consisted of 3 steps, communication consisted of 5 steps, environmental safety consisted of 5 steps, and prescribed treatment and follow up consisted of 4 steps.

### **Scoring system:**

The scoring system for mothers' practices was calculated as follow 2 for always, 1 for sometimes, and 0 for never done practices. The total score of the items was summed-up and the total divided by the number of items and giving a mean score.

**The total scores of reported practices equaled 80 points and categorized as follow:**

-**Satisfactory practice** was  $\geq 60\%$  ( $\geq 48$  points)

-**Unsatisfactory practice** was  $< 60\%$  ( $< 48$  points)

**Tool (III):** It was concerned with measuring the attitude of mothers regarding care for children with CP through using attitude scale which adopted from (Jankowska et al., 2015) and modified by the investigator and consisted of 19 items.

### **Scoring system of attitude:**

Attitude scale score calculated as (2) scores for agree, (1) score for uncertain and (0) for disagree.

**Total score of attitude equal 38 and was categorized as follow:**

The total attitude score were considered positive attitude if the score  $\geq 80\%$  ( $\geq 30$  points) and considered negative attitude if the score  $< 80\%$  ( $< 30$  points).

**Tools validity:**

Tools of data collection were reviewed by five experts from the Community Health Nursing Department at Faculty of Nursing, Benha University to test the tool for content validity according to their judgment clarity of sentences, relevance, comprehensiveness, legibility, appropriateness of contents and applicability. According their judgements the tools are consider valid.

**Tools reliability:**

Reliability of the study tools were tested for its internal consistency by Cronbach's Alpha. Reliability of the study tools was 0.820% for knowledge, 0.720% for practice, and 0.755% for mothers' attitude.

**Ethical considerations:**

The study approval was obtained from Scientific Research Ethical Committee of Faculty of Nursing Benha University before starting the study with ethical code REC.CHN.P71. All ethical considerations were issued; Formal consent was being obtained from each mother having preschool children before conducting the interview and given them a brief orientation to the purpose of the study. They were also reassured that all information gathered would be in a confidential manner and used only for the purpose of the study. No names were required on the forms to ensure anonymity and confidentiality. They were also informed about their rights to withdraw at any time from the study without giving any reasons

**Pilot study:**

The pilot study was conducted on 10% of the total sample, 12 mothers who were taken in 4 weeks. The pilot study was aimed to test the

content, clarity, applicability and simplicity of the tool using the interviewing questionnaire at pre-test tools. No modifications were done, so the pilot study sample was included in the total sample

**Educational program construction:**

Based on the results obtained from interviewing questionnaires and observed checklists, as well as literature review, the health educational program developed by researchers, the researchers implemented the health educational program for mothers of children with CP at Neurology Pediatric Outpatients Clinics. It was implemented immediately after pretest. The researchers implemented the educational program through five phases as the following:

**1. Preparatory phase:**

Preparation of the study design and data collection tools was based on extensive review of the current and past available national and international references related literature about CP by using a journal, textbooks and internet search to contrast the tools. This was necessary for the researchers to be acquainted with and oriented about aspects of the study problem as well as to assist in the development of data collection tools. Also prepared booklet for studied mothers that included all items about CP, this took about two months for preparing the tools.

**2. Assessment phase:**

At the beginning of the interview the researchers introduced herself to each mother included in the study, explained the purpose of the study to the participants and provided the mothers with all information about the study purpose, duration, activities, feedback about the study and take oral consent. Then the researchers distributed pretest questionnaires for collecting data to assess mothers' demographical characteristics,

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knowledge, practices and attitude regarding cerebral palsy.

### **3. Planning phase:**

The researchers identified the important needs for target groups, set priorities of needs, goals and objectives were developed.

#### **♣ General objective:**

By the end of the educational health program, the mothers having preschool children with CP will be able to discuss knowledge, attitude and practices regarding children with CP.

#### **♣ Specific objectives:**

- Identify definition of cerebral palsy
- Describe early and current signs and symptoms of cerebral palsy
- Identify types of cerebral palsy
- List risk factors of cerebral palsy during prenatal period
- List risk factors of cerebral palsy during perinatal period
- List risk factors of cerebral palsy during post natal period
- Discuss complications of cerebral palsy
- Mention types of investigations required for cerebral palsy
- Mention methods of treatment of cerebral palsy
- Discuss ways of prevention of cerebral palsy
- Discuss misconceptions and myths of mothers about CP
- Promoting and develop positive attitude regarding CP
- Apply health practices regarding oral feeding and drinking for children with CP
- Apply health practices regarding mobility, movement, development of milestone of children with CP
- Demonstrate health practices regarding care of cerebral palsy children during seizures and environmental safety.
- Demonstrate practices regarding communication with children with CP.

- Apply health practices regarding personal hygiene for children with CP

### **4-Implementation phase:**

Data was collected through 6 months from the beginning of May 2024 to the end of October 2024. The study was carried out by the researchers for the studied sample in the selected setting of Neurology Pediatric outpatient Clinics in Benha University Hospital and Children Specialized Hospital. In the first week, the researchers visited the previous setting three days per week (Saturday for Neurology Pediatric outpatient Clinic in Benha University Hospital and Sunday and Tuesday for Neurology Pediatric outpatient Clinic in Children Specialized Hospital) from 9:00 am to 1:pm. The average time needed for the sheet was around 30-45 minutes, the average number interviewed at Neurology Pediatric outpatient Clinics were 1-3 mothers/day depending on the responses of mothers

At the beginning of the first session mothers were oriented with the program contents. The mothers were interviewed in small groups by the researchers to implement the educational program regarding CP. The number of mothers participated in each session were 1-3 mothers. The subsequent session started by feedback about the previous session and the researchers discussed the objectives of the new session taken into consideration the use of simple Arabic language to suit mothers' level of understanding.

At the end of each session, the researchers gave five minutes to permit the mothers to ask any questions to clarify the session contents and to correct any misunderstanding. The researchers informed the mothers participated in the study about the time of the next sessions. The researchers used teaching methods such as lectures, discussion, demonstration and re-demonstration and



suitable teaching media included booklet, pictures, and videos through laptop. Booklet was distributed to all recruited mothers in the study from the first session to achieve the objectives.

The researchers applied the educational program through eight sessions, the sessions divided into 4 theoretical sessions and 5 practical sessions. The duration of each session was (30-45) minutes according to mothers' achievements and feedback.

The researchers discussed theoretical and practical sessions as following:

♣**Theoretical sessions: It included four sessions as following:**

**Session I:** At the beginning of the first session, the researchers welcome and introduce themselves to mothers, an orientation to the program and its process were presented with clearance general and specific objectives of the program covered definition of CP, early and late symptoms of CP, and types of CP

**Session II:** Covered risk factors of CP during prenatal, perinatal, and post natal periods

**Session III:** Covered types of investigations required for diagnosis of CP, methods of treatments of CP, and ways of prevention of CP.

**Session IV:** Covered negative and positive attitude of mothers regarding CP

♣**Practical sessions: It included five sessions as following:**

**Session I:** Covered health practices regarding feeding and drinking for child with CP, guidelines for correct positions of feeding and drinking practices, environmental hygiene, healthy diet, and guidelines for food texture and dinner ware.

**Session II:** Covered health care practices regarding mobility and development milestone of child with CP, good carrying positions, proper positions for prevention of

deformity, and how to facilitate mobility and development practices for child with CP.

**Session III:** Covered health care practices regarding dealing with convulsion attack, and environmental safety measures for child with CP.

**Session IV:** Covered health practices regarding communication with children with CP in case of speech impairment.

**Session V:** Covered health care practices regarding personal hygiene for child with CP, oral care and controlling drooling saliva, training for defecation and prevention of constipation

**Program booklet:**

A booklet including all content of the program was designed and given to the mothers as an educational reference during the program implementation and as self-learning reference after program implementation. Its aim was providing accurate knowledge, attitude and practices related guideline instructions about CP.

**5. Evaluation phase:**

This phase aimed to evaluate the level of improvement in mothers' knowledge attitude and practices. Evaluation of the program was done by using the post-test tools which were the same formats of pre-test tools in order to compare the change in the mothers' awareness regarding cerebral palsy after implementation the program.

**Statistical analysis:**

All data collected were organized, tabulated and analyzed using appropriate statistical test. The data were analyzed by using the Statistical Package for Social Science (SPSS) version 21 which was applied to calculate frequencies and percentage, mean and standard deviation, as well as test statistical significance and associations by using Chi-square test ( $\chi^2$ ) and linear correlation coefficient ( $r$ ) and matrix

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correlation to detect the relation between the variables (p value).

**Significance levels were considered as follows:**

- Highly statistically significant  $p < 0.001^*$
- Statistically significant  $p < 0.05^*$
- Not significant  $p > 0.05$ .

### **Results:**

**Table (1):** Shows that; 48.8% of the studied mothers their age were 30<40 years with mean age was  $30.5 \pm 6.1$  years, and 51.2% of them had primary education. Also 89.6% of the studied mothers were married, 51.2% of them were living in rural area, and 58.4% of them had 3-5 persons in family. Regarding monthly income 44% of the studied mothers had enough income for basic.

**Table (2):** Shows that; 66.4% of the studied CP children their age were from 4 years to less than 6 years with mean age was  $4 \pm 1.1$ , and 51.2% of them were male. Regarding child ranking 40.8% of the studied CP children were the third child.

**Figure (1)** shows that; 32% of children didn't have problems after birth, while, 24% of them had low oxygen, and 13.6% of them had respiratory problems, moreover, 1.6% of them had febrile convulsion, and 0.8% of them had metabolic disorder.

**Figure (2):** Reveals that; 8% of the studied mothers had good knowledge about CP pre-program, however post program increased to 85.6%. While 18.4% of them had average knowledge pre-program compared by 8.8% post program and 73.6% of them had poor knowledge pre-program while post program implementation decreased to 5.6%.

**Figure (3):** Reveals that; 60.8% of the studied mothers had total unsatisfactory reported practices at pre-program compared to 30.4% post program, while 39.2% of them had satisfactory reported practices at pre-program and this percentage increased to 69.6% at post program implementation

**Figure (4):** Reveals that; 68.8% of the studied mothers have negative attitude toward CP at pre-program compared to 20.8% at post program implementation. Also, 31.2% of them have positive attitude regarding CP at pre-program compared to 79.2% at post program implementation.

**Table (3):** Shows that; there were a weak positive correlations between the studied mothers' knowledge, practices, and attitude at pre-program, while post program there were a strong positive correlations between the studied mothers' knowledge, practices, and attitude

**Table (1): Frequency distribution of studied mothers regarding to their demographic characteristics (n=125).**

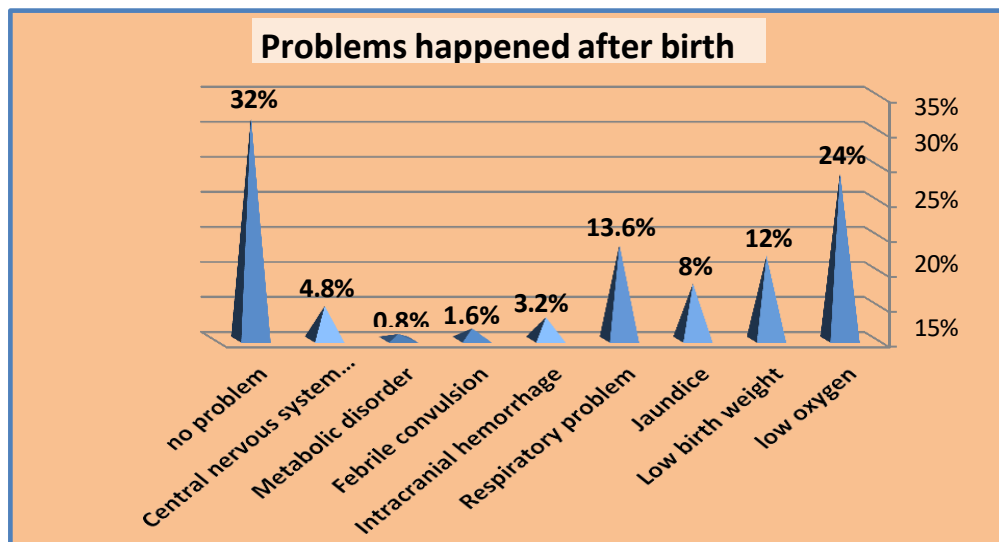
Socio-demographic characteristics	No.	%
Age of mother/year		
20 - < 30	55	44.0
30 -<40	61	48.8
40 - < 50	9	7.2
Mean ± SD	30.5 ± 6.1	
Education level		
Cannot read or write	19	15.2
Primary education	64	51.2
Secondary education	32	25.6
High education	10	8.0
Social status		
Married	112	89.6
Divorced	9	7.2
Widowed	4	3.2
Occupation		
Working	70	56.0
Not working	55	44.0
Residence		
Rural	64	51.2
Urban	61	48.8
Family number/person		
< 3	10	8.0
3-5	73	58.4
> 5	42	33.6
Monthly income		
Enough for basic	55	44.0
Enough and save	39	31.2
Not enough	31	24.8



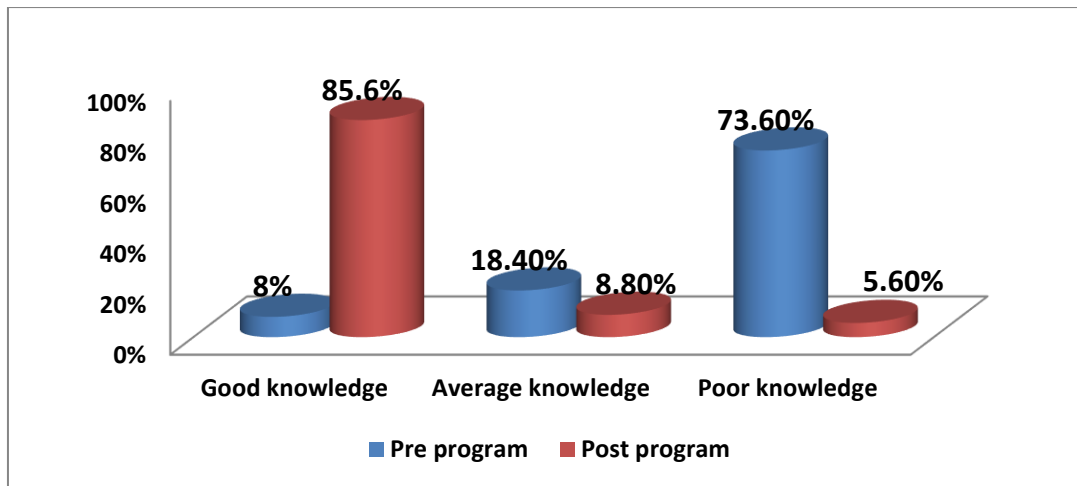
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**Table (2): Frequency distribution of the studied cerebral palsy children according to their personal characteristics (n=125).**

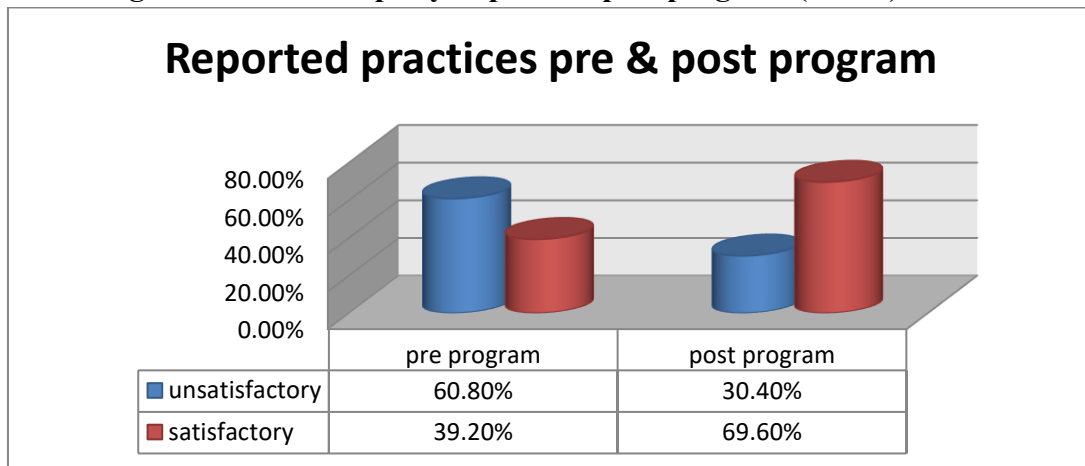
Personal characteristics of children with cerebral palsy	No.	%
Age of child/year		
<2	7	5.6
2 < 4	35	28.0
4 ≤ 6	83	66.4
Mean ± SD =	4±1.1	
Sex		
Male	64	51.2
Female	61	48.8
Child ranking		
First child	27	21.6
Second child	41	32.8
Third child	51	40.8
	6	4.80



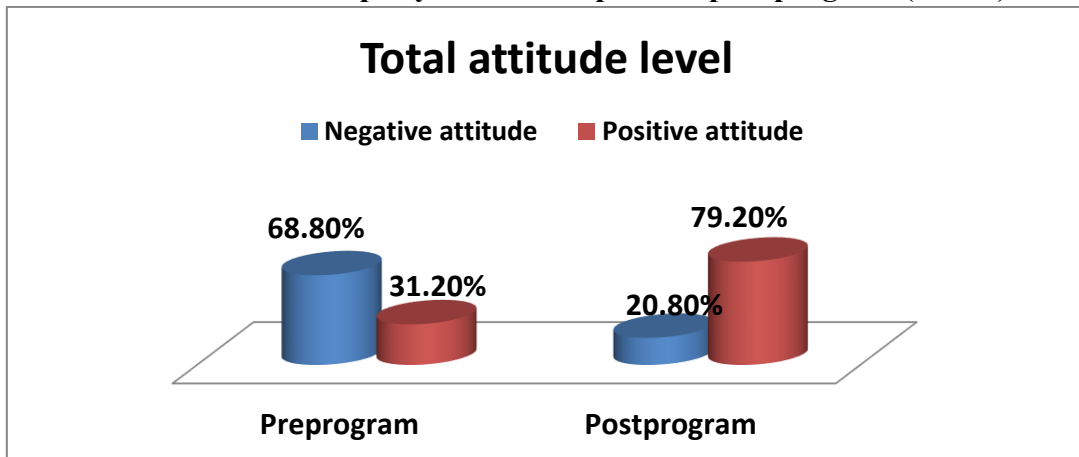
**Figure (1): Percentage distribution of studied children according to past medical history (postnatal risk factors) (n= 125).**



**Figure (2): Percentage distribution of studied mothers regarding their total knowledge about cerebral palsy at pre and post program (n=125).**



**Figure (3): Percentage distribution of studied mothers regarding their total reported practices for their cerebral palsy children at pre and post program (n=125).**



**Figure (4): Percentage distribution of studied mothers regarding their total attitude items toward cerebral palsy children at pre- program and post program (n=125).**

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**Table (3): Correlation matrix between knowledge, practices and attitude of the studied mothers pre and post program implementation.**

Characteristics			Total knowledge	Total practices	Total attitude
Pre program	Total knowledge	R	1	0.306	0.197
		P. value	-	0.004*	0.654
	Total practices	R	0.306	1	0.236
		P. value	0.004*	-	0.165
Post program	Total knowledge	R	1	0.809	0.704
		P. value	-	0.000**	0.000**
	Total practices	R	0.809	1	0.857
		P. value	0.000**	-	0.000**

### Discussion

According to socio-demographic characteristics of the studied mothers, the current study demonstrated that around half of the studied mothers aged 30<40 years old with mean age was 30.5±6.1. This finding agreed with **Ballantyne et al., (2020)**, who studied "mothers' perceived barriers to and recommendation for health care appointment keeping for children who have cerebral palsy, Canada" (n=15), and found that; 40% of the studied mothers aged 30<40. This might be due to biological changes related to women ages. Therefore pregnancy at a later age may increase the risk of health complications that can affect pregnancy.

Regarding to personal characteristics of the studied children, the current study revealed that two thirds of the studied CP children their age were from 4 years to ≤ 6 years with mean age was 4±1.1 years. This finding supported with **Abowafa et al., (2022)**, who studied "impact of educational empowerment program on knowledge, aggression, loneness, and anxiety of mothers

having children with cerebral palsy, Egypt" (n=100), who found 51% of the studied CP children were aged 3 years to 6 years with mean age 3.23±3.3. This might be due to symptoms associated with CP begun to appear more clearly, parents begin to notice a delay in motor development, speech, and cognitive abilities of the child. As well as this period is critical for diagnosing the condition and developing a treatment plan, so early intervention helps to improve the child abilities and enhances the chances of adapting to the condition better.

According to the problem happened after birth the current study revealed that less than third of CP children had no problems after birth. This finding was in the same line with **Baraka et al., (2019)**, who studied "effect of educational intervention program on mothers' knowledge and practice about quality of life for their children with cerebral palsy, Egypt" (n=60), who found 45% of the studied CP children had no problem after birth. This might be due to CP is caused by damage or disorder to the brain during the period of

brain development, which may occur during pregnancy, childbirth, or after birth, so is not necessarily that CP occurred as a result of problems after birth.

Concerning the studied mothers' total knowledge levels about CP pre and post program implementation, the current study revealed minority of the studied mothers had good knowledge regarding CP preprogram, while after program implementation, the majority of the studied mothers had good knowledge regarding CP. This result was supported by **Draz & Elsharkawy, (2021)**, who studied "effect of supportive educational intervention for mothers of female adolescents with cerebral palsy on their caring practices, Egypt" (n=50), who found 12% of the studied mothers had good knowledge regarding CP preprogram and this percentage increased to 64% post program implementation. From the researchers' opinion about preprogram result, this might be due to lack of community awareness about CP as lack of workshops or seminars for parents to educate them about CP after diagnosis, the spread of misconception and myths about CP, and social stigma and fear of talking about the disease. But, after educational program implementation mothers' knowledge improved due to the ability of educational program to provide accurate up to date knowledge about CP, helping mothers better understanding the disease.

Regarding the studied mothers' total reported practices for their children with CP at pre and post program. The current study revealed that around two fifth of the studied mothers had total satisfactory reported practices regarding care for children with CP and this percentage improved to more than two thirds at post program implementation. This finding was in the same line with **Rashad et al., (2021)**, who studied "effectiveness of maternal training program

on improvement of care provided to children with cerebral palsy at Zagazig University Hospital" Egypt (n=50), who found 24% of the studied mothers had satisfactory reported practices at preprogram and improved to 50% post program implementation. This finding might be due to the value of educational program for providing comprehensive information about CP for helping mothers better understand their children's condition and practical training on how to carry out daily care activities. Also educational program provided an interactive environment that support mothers psychologically and socially by sharing their experience with others.

Regarding the studied mothers' total attitude level pre and post program implementation, the current study revealed that around one third of the studied mothers had positive attitude regarding CP and improved to majority at post program implementation. This finding supported with **Moenardi et al., (2020)**, who studied "cerebral palsy parents' knowledge, attitude, and behavior at Dr. Hasan Sadikin General Hospital, Indonesia" (n=50), who found 58.06% of the studied mothers had positive attitude regarding CP. This might be due to the educational program often provides mothers with the opportunity to connect with others who are facing similar challenges, this social and psychological support helps them reduce feeling of isolation, and gives them the strength to face difficulties. In addition to the educational program provided realistic information about the child's condition, helped mothers to correct misconception about CP and helped them understood what to expect and how to deal with challenges. This understanding reduces feeling of stress and improved their attitude and their outlook on life.

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Regarding correlations between the studied mothers' attitude and their knowledge and practices pre and post program implementation. The current study revealed that there was a weak positive correlation between the studied mothers' knowledge, practices, and attitude at pre-program. While post program, there was a strong positive correlation between the studied mothers' knowledge, practices and attitude. This might be due to at preprogram, the mothers' knowledge and practical regarding CP not deep, superficial, unreliable or not comprehensive enough. In addition to mothers' attitude toward CP may be more related to cultural and social beliefs and their personal experience and feeling with the children. At post program, these factors may change to a stronger correlation as mothers gain both theoretical and practical insights regarding care for children with cerebral palsy.

### **Conclusion:**

Health educational program succeeded to improve mothers' knowledge, practices, and attitude. Minority of the studied mothers had good knowledge about CP pre-program. However, post program increased to the majority of them. Less than two fifths of the studied mothers had total satisfactory practices (observational & reported) at pre-program compared to majority of them at post program implementation. Moreover, around one third of them have positive attitude regarding CP at pre-program compared to majority at post program implementation. There were weak positive correlations between the studied mothers' knowledge, practices, and attitude at pre-program. While post program, there were a strong positive correlations between the studied mothers' knowledge, practices and attitude.

### **Recommendations:**

- ♣ Continuous health educational program should be applied to mothers of children with CP in health facilities to improve their awareness regarding CP.
- ♣ Community based rehabilitation programs should be provided for children with cerebral palsy.
- ♣ Increase the public awareness toward cerebral palsy and available specialty center that provide care for these children through mass media, pamphlets, and posters.
- ♣ Further studies should be conducted on risk factors and prevention of cerebral palsy.

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تأثير برنامج التنقيف الصحي علي وعي الأمهات تجاه رعاية الأطفال المصابين بالشلل الدماغي في مدينة بنها  
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الشلل الدماغي هو اضطراب دائم في الوضع والحركة ناتج عن تلف في دماغ الجنين أو الطفل. لذلك هدفت هذه الدراسة الي تقييم تأثير برنامج التنقيف الصحي علي وعي الأمهات تجاه رعاية الأطفال المصابين بالشلل الدماغي في مدينة بنها. تم استخدام تصميم بحث شبه تجريبي لإجراء هذه الدراسة، وقد أجريت هذه الدراسة علي ١٢٥ من أمهات الأطفال المصابين بالشلل الدماغي والمتريدين علي العيادات الخارجية لأمراض مخ وأعصاب الأطفال بمستشفى بنها الجامعي ومستشفى الأطفال التخصصي بمدينة بنها. حيث كشفت النتائج علي ٨٪ من الأمهات كان لديهن معرفة جيدة بالشلل الدماغي قبل تنفيذ البرنامج وأصبحت ٨٥,٦٪ بعد تنفيذ البرنامج، كما كان هناك ٣٩,٢٪ من الأمهات لديهن ممارسات مرضية قبل البرنامج مقارنة ب ٦٩,٦٪ بعد البرنامج كما كان هناك ٣١,٢٪ من الأمهات لديهن إتجاه إيجابي تجاه الشلل الدماغي قبل البرنامج مقارنة ب ٧٩,٢٪ بعد تنفيذ البرنامج. وقد لخصت النتائج أن البرنامج التنقيفي نجح في تحسين وعي الأمهات تجاه رعاية الأطفال المصابين بالشلل الدماغي. وقد أوصت الدراسة بإجراء المزيد من الدراسات والبرامج التنقيفية لتحسين معلومات وممارسات واتجاهات الأمهات تجاه رعاية الأطفال المصابين بالشلل الدماغي.