

Effect of Health Educational Guidelines on knowledge and practices of Mothers having Children with Bell's Palsy

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Abstract

Background: Bell's palsy (BP) is a common cranial neuropathy causing acute unilateral lower motor neuron facial paralysis and idiopathic, unilateral or bilateral paralysis of the facial nerve without any associated disorders. **Aim:** To evaluate the effect of health educational guidelines on knowledge and practices of mothers having children with Bell's Palsy. **Design:** A quasi-experimental research design was used. **Setting:** This study was conducted at physical therapy department of Beni-Suef Hospital. **Subject:** 100 mothers and their children were selected randomly. **Tools:** Two tools were used for data collection, **Tool1: A Self-administered questionnaire:** Developed by the researchers and used to assess characteristics of mothers and their children also mothers' knowledge about Bell's palsy (pre, post, and at follow up) phases of guidelines implementation. **Tool2: An observational checklist** (pre/post and follow up tests) to evaluate mothers' practices in relation to their children with Bell's palsy such as pain relieving, eye care, follow up with doctor, mouth and dental hygiene, maintaining muscle tone and facial palsy yoga exercise. **Results:** There were highly statistically significant differences ($P < .0001$) regarding mothers knowledge and practices before, immediately after and at follow up phases of guidelines implementation. **Conclusion:** The present study concluded that, the educational guidelines had a positive effect on mothers' knowledge and their practices about their children with Bell's palsy. **Recommendations:** Continuous ongoing in-service educational programs to nurses, mothers and caregivers are necessary to improve their knowledge, increase their awareness, follow-up and care of their children to decrease health complications.

Keywords: Educational Guidelines, Mothers' Knowledge and Practices, Children, Bell's Palsy

Introduction

The seventh cranial nerve (CNVII) is the human facial nerve and comprises motor, sensory and parasympathetic components. Its function is responsible for voluntary and mimetic facial movement, taste to the anterior two-thirds of the tongue and organize salivary and lacrimal glands secretions (Diamond et al., 2011).

Bell's palsy (BP) is a common cranial neuropathy causing acute unilateral lower motor neuron facial paralysis. It is an idiopathic weakness or paralysis of the face of peripheral nerve origin, with acute onset (Evison et al., 2015). Bell's palsy affects 20–30 persons per 100,000 annually and 1 in 60 persons will be affected over the course of their lifetime. It has an occurrence rate of 18.8 cases per 100,000 in children younger than 18 years old. Bell's palsy is an important cause of

disability in some pediatric patients with major facial dysfunction and reduced quality of life (Cubukcu et al., 2013).

Bell's palsy occurs with equal frequency on the right and left side of the face (Karaganova and Mindova, 2016). The exact etiology of BP is unknown, but viral infection, autoimmune disease and vascular causes have been postulated as possible pathomechanisms (El-Tallawy, et al., 2015). The main cause of Bell's palsy is believed to be an infection of the facial nerve by the herpes simplex virus. As a result of this viral infection, the facial nerve swelling may lead to nerve compression in its canal as it courses through the temporal bone (John, Gordon and Sachin, 2014).

Bell's palsy may be idiopathic or may have a detectable cause. Approximately, 80% of peripheral facial weakness cases are primary

and the rest of them are secondary (**Bašić-Kes et al., 2013**). The acute facial nerve disorder (Bell's palsy) may begin with symptoms of pain in the mastoid region and produce full or partial paralysis of movement in one side of face. The main cause of this disorder is reactivation of latent herpes simplex virus type 1 in the cranial nerve ganglia. The other most common causes of secondary peripheral facial weakness are systemic viral infections, trauma, surgery, diabetes, local infections, tumor, immune disorders, drugs, and degenerative diseases of the central nervous system (**Teixeira, Valbuza and Prado, 2012**). Treatment are generally planned to improve facial function and facilitate recovery. There are myriad treatment options for Bell's palsy and some controversy exists regarding the effectiveness of several of these options and there are consequent variations in care (**Baugh et al., 2017**). The pediatric nurses role in educational guidelines of mothers regarding Bell's palsy in their children is very important and critical to raise their knowledge and practices regarding caring of their children and increasing recovery rates of Bell's palsy in the orientation program and the in-service training.

Also, this guidelines ensure that, the caregivers personnel, who are involved in the application of home program or care, are trained and competent to perform the procedure with perfect technique that leads to proper care of Bell's palsy and increasing recovery rates and thus preventing the occurrence of complications because the overall children patients are generally good with a high rate of recovery (66–92%) (**Cubukcu et al., 2013**). Initially, all lesions are managed with physical therapy program consisting of superficial heat, massage with warm water, exercise with music and electrical stimulation for maintaining muscle tone and facial palsy yoga exercise, pain relieving, eye care, follow up with doctor, mouth and dental hygiene and observation and encouraging normal development are the core goals of non-operative management. Surgical involvement may be warranted, depending on functional recovery (**Raducha et al., 2017**).

Significance of the study

More than 52% of children in Egypt exposed to Bell's palsy (**El-Tallawy et al., 2016**). Also, the mothers' lack knowledge and unsuitable practices about child' Bell's palsy. So, there is a need for health education to mothers to increase their knowledge and improve their practices regarding children Bell's palsy.

Aim of the study

To evaluate the effect of health educational guidelines on knowledge and practices of mothers having children with Bell's Palsy.

Research Hypothesis:

1. The mothers' knowledge will be significantly improved after implementation of the Bell's palsy educational guidelines than before.
2. The mothers' practices will be significantly enhanced after implementation of the Bell's palsy educational guidelines than before.

Subjects and Methods

Research design:

A quasi-experimental research design was used in order to achieve the aim of the study. This design used to compare participant groups and measure the degree of change occurring as a result of treatments or interventions.

Setting: The present study was conducted at physical therapy department of Beni-Suef Hospital. As to give mothers more education about their children with Bell's palsy during physical therapy sessions. Physical therapy department is a department in children hospital of Beni-Suef University, it consists of three rooms, one for receiving cases and the second to receive nursing care and physiotherapy and the third to follow up with the doctor.

Subjects: All available mothers and their children (convenience sample) with bell's palsy attended at previously setting at the study time (100 mother) are willing to participate in the study and didn't attend any program about bell's palsy in children.

III. Study Tools

Two tools were used in this study for data collections:

First tool: A self-administered questionnaire:

Developed by the researchers after reviewing the related literature (Bašić-Kes et al., 2013 & Eviston et al., 2015). It was used to assess the following parts:

Part (A): Characteristics of the neonates and young children, such as; age, sex, educational level and residence.

Part (B): Characteristics of mothers, such as; age, educational qualification and occupational status.

Part (C): It was used to assess mothers' knowledge about Bell's palsy in their children (pre, post, and at follow up) guidelines implementation. It assesses the main concepts in Bell's palsy, which included 12 open-ended questions about definition of facial nerve (1 question), function of facial nerve (1 question), definition of bell's palsy (1 question), types (1 question), causes (1 question), clinical manifestation (1 question), diagnostic tests (1 question), preventing measures (1 question), surgical and medical treatment (2 questions), complications (1 question) and nursing care (1 question). This questionnaire distributed in the same form three times (pre, post-guidelines implementation and at one month follow up) for the same group of mothers. The questionnaire Alpha Cronbach's reliability test equal 0.84.

Scoring system: Knowledge content was divided into 12 questions and each question was assigned to three score levels: Complete and/or correct answer was scored (3), while incomplete correct answer was scored (2) and don't know or wrong answer was scored (1). The total score was categorized into either satisfactory level (from 70% and more) or unsatisfactory level (less than 70%) from total score (36).

II. An observational checklist (pre/post and follow up tests). Adopted from; (Teixeira, Valbuza and Prado (2012), Karaganova & Mindova (2016), and Baugh et al., (2017). It was filled in by the researchers to evaluate mothers' practices in relation to children with **Bell's palsy** as pain relieving, eye care, follow up with doctor, mouth and dental hygiene,

maintaining muscle tone and facial palsy yoga exercise.

Scoring system: Each step was assigned into two score levels, which are: done was scored (2) and not done scored (1). The total score was categorized into either competent (70% and more) or incompetent (less than 70%) from total score as the following: pain relieving (7 steps) and total score = 14; eye care (7 steps) and total score = 14, follow up with doctor (15 steps) and total score = 30, mouth and dental hygiene (13 steps) and total score = 26; and maintaining muscle tone and facial palsy yoga exercise (14 steps) and total score = 28. The checklist's Alpha Cronbach's reliability test equal 0.86. The practice total score equal 112.

Validity and reliability of study tools:

Content validity was ascertained by a group of experts (5) including 3 in Pediatric Nursing, 1 Pediatric Medicine and 1 Physiotherapist. Their opinions were stimulated regarding the tools format layout, consistency and scoring system. The tools content was verified regarding the knowledge accuracy, relevance and competence. Reliability of all items of the tools was done. The reliability test was established by using the Cronbach's alpha to assess internal consistency construct validity. Cronbach's alpha $r = 0.86$ and 0.84 .

Administrative design:

An official approval was obtained from the administrators of the study settings to carry out the study. A clear explanation was given about the aim, nature, importance and expected outcomes of the study.

Pilot study:

A pilot study was conducted on 10% of the total study subjects (10 mothers) to test the clarity and practicability of the tools and suitability of the setting. The pilot study sample is then excluded from the main study sample as there were no modifications in the tools.

Ethical considerations:

Approval to conduct the study was obtained from the director of the previous setting. All mothers who agreed to participate and meet the inclusion criteria were informed about the study aim and their rights according to research ethics to participate or not in the study. Then, they gave their consent to participate in the study.

Field work:

This study was carried out over a period of 12 months from the beginning of May 2020 to the end of April 2021. The average time spent to fill in the tools was 30 minutes for the self-administered questionnaire and 20 minutes for observational checklist as it filled by the researchers. The previously mentioned settings were visited by the researchers 2 days/week (Monday & Tuesday) from 9.00 a.m. to 2.00 p.m.

Educational guidelines phases:

This guidelines was conducted on five consecutive phases, assessing, developing, implementing, evaluating and following-up

Assessment phase:

A pre-educational guidelines assessment was performed using the self-administered questionnaire for data collections from the previously mentioned settings. This phase aimed to assessing mothers' knowledge and practices regarding their children with Bell's palsy.

Preparation phase:

- An educational guidelines was developed based on actual mothers' needs assessment about Bell's palsy in their children.
- Contents of the guidelines were written in simple Arabic language by the researchers, consistent with the related literatures and mothers' level of understanding.
- The guidelines were presented in theoretical and practical sessions. Subjects were divided into small groups (9-10) mothers and repeated sessions included all mothers. Each group attended 4 sessions (2 theories and 2 practices). Moreover, each mother was guided by simple instructions and then orientation about the aim, contents and expected outcomes.

First: The theoretical sessions were presented into 2 sessions (each session for 30 minutes) and cover the following items: definition and functions of facial nerve, also, definition, types, causes, clinical manifestations, diagnostic tests, preventive measures, medical and surgical treatment, complications and nursing care of Bell's palsy in children.

Second: Sessions were conducted in the form of lectures/discussions, followed by the

practical part which consisted of two sessions (each session for 30 minutes) and covers the following items: pain relieving, eye care, follow up with doctor, mouth and dental hygiene, maintaining muscle tone and facial palsy yoga exercise in the form of demonstration and re-demonstration using role play, simulator, real objects, discussions and brainstorming. The researchers used effective media of conveying information as, power point presentations and posters. A guidelines handout were developed and offered for mothers as a reference to be used after guidelines implementation.

Program construction:

- Contents of the guidelines were written in simple Arabic language by the researchers, consistent with the related literatures and mothers' level of understanding.
- The guidelines were presented in theoretical and practical sessions. Subjects were divided into small groups (5 – 6) mothers and repeated sessions to include all mothers. Each group attended 4 sessions (2 theories and 2 practices). Moreover, each mother was guided by simple instructions and then orientation about the aim, contents and expected outcomes was done.
- Mothers were informed to be in contact with the researchers by telephone for any guidance.
- Evaluation for the effect of guidelines on the studied mothers using the pre-constructed tools as follows:
 - Posttest was done after implementation of the guidelines.
 - Following up test after one month later by using the same tools

Implementations of the guidelines:

Implementations of the educational guidelines were conducted at the previously stated setting. At the beginning of the first session, an orientation of the educational guidelines and its purpose was presented. Mothers were divided into groups, and each group involved 5-6 mothers approximately. Each session started with a

summary about what had been given through the previous sessions and the objectives of the new topic, taking into consideration the use of simple language to suit the level of mothers' educations. As well as, the session ended by a summary of its content and a feedback gained from mothers.

The educational guidelines were carried out through four sessions, the time of each session ranged between 30 - 45 minutes according to the mothers' needs and condition of the group. The theoretical part of the strategic guideline was presented into two sessions in the form of lectures/discussions, followed by the practical part which consisted of two sessions in the form of demonstration and re-demonstration using role play, simulator, real objects, discussions and brainstorming. The researchers used effective media of conveying information as, power point presentations and posters. A guidelines handout were developed and offered to mothers as a reference to be used after guidelines implementation.

Evaluation phase:

The evaluation phase was done immediately post implementation of the educational guidelines and at follow up one month later by comparing changes in mothers' knowledge and practices regarding educational guidelines for neonates and young children with **Bell's palsy**.

Statistical Design:

The data collected were organized, sorted, tabulated and analyzed using the Statistical Package for Social Sciences (SPSS), version (22). They were presented in tables and charts using numbers, percentages, means, standard deviations, t-test and Chi-square (X²) test. Level of significance was considered $p < 0.0001$.

Results:

Table (1) shows that 63% of the studied children age, ranged between 13-18 years with a mean age 12.9 ± 2.1 years, 60% of children were females and the majority of them were affected in Autumn (52%) and Winter (31%). As regards level of education, 50% of children were having secondary education and 67% of them reside rural areas. Also, the affected side of face was the right side in more than half of the studied children (54%).

Table (2) shows the socio demographic characteristics of the studied mothers. It indicated that, their age ranged between $25 < 30$ years with a mean age 28.44 ± 3.86 years. Regarding the level of education, less than half (45%) of the mothers had secondary & technical institute degree. As regards mother's occupation 55% of mothers were housewives.

Figure (1) illustrates that the sources of mothers' information about **Bell's palsy** were other families (33%), followed by health care team (30%), then friends (20%), and the least sources were mass media (17%).

Table (2): Portrays the percentage distributions of mothers according to their knowledge about Bell's palsy in children throughout the guidelines phases. There were highly statistically significant improvements in mothers' knowledge immediately post and at follow up of phases of as regards all knowledge items about Bell's palsy in children than before guidelines implementations.

Figure (2) describes the studied mothers' total knowledge scores. The majority of mothers (90%) had unsatisfactory level of knowledge before the guidelines implementation, which improved for most of them (88%), immediately post guidelines implementation. However, the same figure illustrates that, the majority of studied mothers (80%) had satisfactory level in their total knowledge scores in the follow up phase of guidelines implementation, with a highly statistically significant differences ($P < .0001$).

Table (4): points out that there are highly statistically significance improvements in mothers' practices immediately post and at follow up of guidelines implementation as regards all knowledge items about Bell's palsy in their children.

Figure (3) illustrates that, the studied mothers' total practices score, most of the studied mothers (85%) had incompetent level of practices before the guidelines implementation, which improved for most of them (85%) to have competent practices immediately post guidelines implementation. Furthermore, the same figure shows that, the majority of studied mothers (70%) had competent level in their total scores of practices in the follow up phase

of guideline implementation with a highly statistically significant differences ($P < .0001$).

Table (6) shows statistically significant positive correlations between knowledge scores and educational level at the post and follows up phases of guidelines

implementation ($P < 0.001$). However, this table shows that there are statistically insignificant correlations between knowledge and practice and children's age and educational level at pre guidelines implementation phases.

Table (1): Characteristics of Children with Bell's Palsy (n=100)

Socio-demographic characteristics	No	%
Age/years		
3 -< 8	22	22.0
8 -<13	15	15.0
13 - <18	63	63.0
Mean \pm SD		12.9\pm 2.1
Sex		
Male	40	40.0
Female	60	60.0
Educational level		
Primary	30	30.0
Preparatory school	20	20.0
Secondary	50	50.0
Residence		
Urban	33	33.0
Rural	67	67.0
Season of occurrence		
Winter	31	31.0
Spring	10	10.0
Summer	7	7.0
Autumn	52	52.0
Involved side of the face		
Right	54	54.0
Left	46	46.0

Table (2): Characteristics of Studied Mothers of Children with Bell's Palsy (n=100)

Socio-demographic characteristics	No	%
		Age/year
<20	10	10.0
20- <25	25	25.0
25- <30	40	40.0
≥30	25	25.0
Mean±SD		28.44±3.86
Educational level		
Illiterate & primary	35	35.0
Secondary & Technical Institute	45	45.0
High education	20	20.0
Mothers' occupation		
Working	45	45.0
Housewives	55	55.0

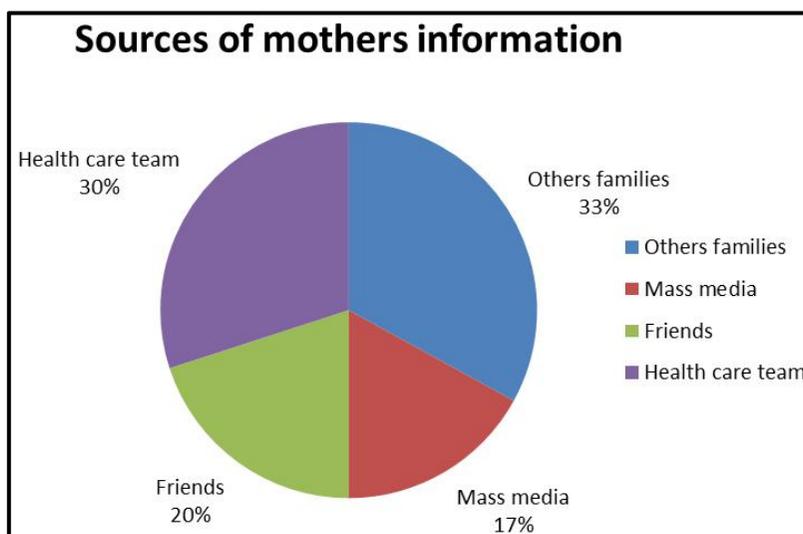
**Figure (1):** Distributions of Mothers according to the Sources of Information about Bell's Palsy in their Children (n=100)

Table (3): Percentage Distributions of Mothers According to their Knowledge about Bell's Palsy in Children throughout the Guidelines Phases (n = 100).

Knowledge related to Bell's Palsy in Children	Pre- guidelines		Post- guidelines		Follow up	
	Satisfactory %	Unsatisfactory %	Satisfactory %	Unsatisfactory %	Satisfactory %	Unsatisfactory %
Definition of facial nerve	5.0	95.0	88.0	12.0	85.0	15.0
Function of facial nerve	3.0	97.0	95.0	5.0	92.0	8.0
Definition of Bell's Palsy	40.0	60.0	95.0	5.0	92.0	8.0
Types	37.0	63.0	96.0	4.0	95.0	5.0
Causes	5.0	95.0	88.0	12.0	85.0	15.0
Clinical manifestations	35.0	65.0	88.0	12.0	85.0	15.0
Diagnostic tests	10.0	90.0	90.0	10.0	85.0	15.0
Preventing measures	5.0	95.0	88.0	12.0	85.0	15.0
Medical treatment	10.0	90.0	90.0	10.0	85.0	15.0
Surgical treatment	40.0	60.0	90.0	10.0	90.0	10.0
Complications	20.0	80.0	90.0	10.0	88.0	12.0
Nursing care	30.0	70.0	95.0	5.0	92.0	8.0
T-test	X² = 17.4 pre-versus post- guidelines					
P value	X² = 24.5 pre - guidelines versus follow- up				P value <0.001**	
	X² = 14.8 post - guidelines versus follow- up					

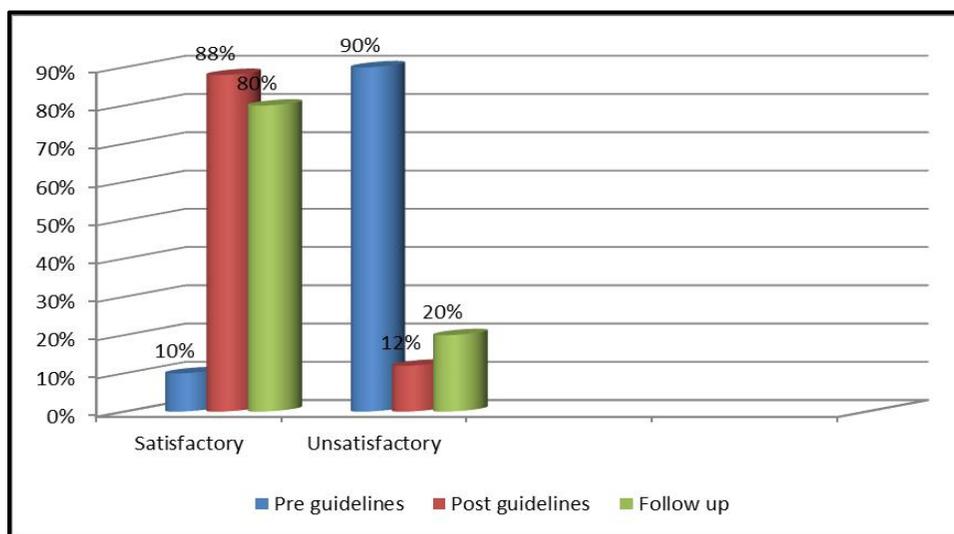
**Figure (2):** Percentage Distributions of Total Knowledge Scores of the Studied Mothers about Bell's Palsy in Children throughout the Guidelines Phases (n = 100).

Table (4): Percentage Distributions of Studied Mothers According to Their Practices about Bell's Palsy in Children throughout the Guidelines Phases (n = 100).

Practice related to Bell's Palsy in Children	Pre- guidelines		Post- guidelines		Follow up	
	Competent	Incompetent	Competent	Incompetent	Competent	Incompetent
	%	%	%	%	%	%
Pain relieving	12.0	88.0	80.0	20.0	87.0	22.0
Eye care	11.0	89.0	75.0	25.0	75.0	25.0
Follow up with doctor	75.0	25.0	96.0	4.0	96.0	4.0
Mouth and dental hygiene	10.0	90.0	90.0	10.0	85.0	15.0
Maintaining Muscle Tone	8.0	92.0	85.0	15.0	82.0	18.0
Facial palsy yoga exercise	28.0	72.0	94.0	6.0	92.0	8.0
T-test	X²=26.8 pre- guidelines versus post- guidelines					P value
P value	X² = 52.5 pre - guidelines versus follow- up				<0.001**	
	X² = 22.5 post - guidelines versus follow- up					

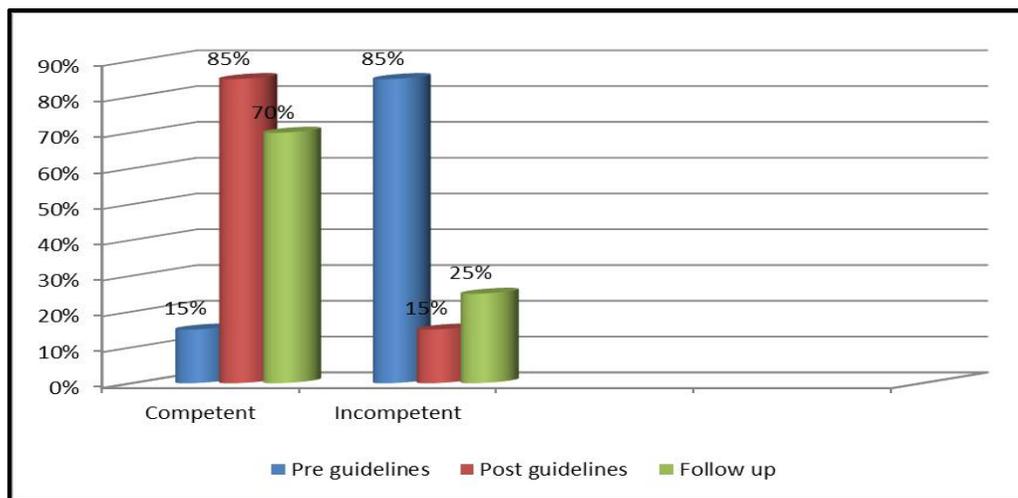


Figure (3): Percentage Distributions of Total Practices Scores of the Studied Mothers about Bell's Palsy in Children throughout the Guidelines Phases (n = 100).

Table (6): Correlations coefficient between mothers' total knowledge and practices about their children Bell's palsy at (pre, post & follow-up) phases and their children's demographic characteristics (n=100).

Variables		Age		Educational level		Residence		Socio-economic status	
		R	P	R	P	R	P	R	P
Knowledge	Pre guidelines	0.72	0.05>	0.248	0.001	0.40	0.05>	0.70	0.05>
	Post guidelines	0.544	0.001	0.145	>0.05	0.142	0.05>	0.041	0.05>
	Follow up	0.451	0.001	0.364	0.001	0.72	0.05>	0.152	0.05>
Practices	Pre guidelines	0.22	0.05>	0.42	0.05>	0.21	0.05>	0.031	0.05>
	Post guidelines	0.433	0.001	0.405	0.001	0.64	0.05>	0.130	0.05>
	Follow up	0.232	0.001	0.224	0.001	0.25	0.05>	0.52	0.05>

* Statistically insignificant ($p > 0.05$)

** Highly statistical significant correlations ($P < 0.001$)

Discussion

Bell's palsy is an idiopathic weakness or paralysis of the face of peripheral nerve origin. Bell's palsy is a peripheral palsy of the facial nerve that results in muscle weakness in one side of the face and an important cause of disability in children, which affect children physical function, self-image, and general wellbeing. Therefore, the aim of the present study was to evaluate the effect of educational guidelines on mothers' knowledge and practices regarding children with Bell's palsy.

The present study revealed that the majority of studied children's age ranged between 13-18 years with a mean age of 12.9 ± 2.1 years and more than half of them were females plus the majority of cases were seen in the Autumn and winter. This result agrees with (Cubukcu, et al., 2013) who stated that, a total of 186 child with BP after reviewing of them, 79 were males and 107 were females, with a mean age 9.56 ± 3.45 years ranging from 0 to 18 years. As regards residence, more than half of them reside Rural areas and more than half of studied children's involved side of face was the right side. This result was in the same line with (Ali et al., 2012). Additionally, this study supported by (El-Tallawy et al., 2016) who stated that the prevalence of BP among rural rather than Urban inhabitants (281.14 and

156.63/100000, respectively). Nevertheless, this finding disagrees with (Prabasheela et al., 2017) who illustrated that Bell's palsy affects males and females equally and can occur at any age, but it is less common before the age of 10 or after age 60 years.

As regard Mothers' age most of them ranged between 25 < 30 years with a mean age 28.44 ± 3.86 years. Similarly Alos, 2014 & Faheim and Amer, 2019 found that, the mean maternal age of mothers having children with BP were 32 years' old and the majority of the cases were young mothers. This younger age prevalence was due to early marriage as it occurs due to poor economic status for some families that mainly prevent females from continuing their education and lead them to get married early.

In relation to mothers' knowledge regarding Bell's palsy, the majority of the studied mothers have unsatisfactory knowledge before guidelines implementation. This results supported by Lunan and Nagarajan (2018) who emphasized that, a recent review of available data for children and their mothers suggests that there is insufficient evidence in this age group to make definitive statements about the best treatment and that 95% of cases will resolve without treatment (Fawcett, 2013) emphasized that important knowledge that mother needed includes knowledge regarding

treatment and caring of children. This results unsupported by **(Mohammed and Omer, 2010)** who stated that, half mothers had good knowledge about BP. Meanwhile, **Alosh, (2014)** stressed that brachial palsy is one of the serious problems that presents in each community and can be avoided and increase prognosis and prevent complications by appropriate awareness and good knowledge of the mothers, community and professional experience of the health services providers.

Mothers' of children with BP needed to have support and guidance in caring of their children, also early intervention improve quality of care outcomes. Improving mothers' knowledge was the major goal of the present study that help to gain more experience and more support **(Kieckhefer et al, 2014)**. In addition, those children require more care and direct supervision than normal healthy children so, mothers require adequate experience in dealing with those cases and carried out program steps, because of the prognosis of BP was good with higher recovery rate. On the other hand physical therapy program seems to be an effectual method to facilitate recovery in patients with poor prognosis **(Cubukcu et al., 2013)**.

As regards total knowledge scores of the studied mothers about BP, the majority of them had unsatisfactory level of knowledge before the guidelines implementation. This result supported by **(Hays & Rozental, 2013)**. However, there was satisfactory knowledge immediately post and follow up phase of guidelines implementation. This finding agreed with **(Abuaraba, 2016)**. Moreover, **Alosh (2014)** who stated that the majority of the studied neonates had good improvement from Erb's palsy after rehabilitation for at least 4 months after delivery. Additionally, a patient centered approach utilizing physiotherapy, targeted botulinum toxin injection and selective surgical intervention has reduced the burden of long-term disability in facial palsy **(Eviston et al., 2015)**. From the researchers point of view improving mothers' knowledge regarding caring of their children with BP was the main aim of the study and the improvement reported in this study indicated the research hypothesis regarding the achieved knowledge.

Regards sources of information about BP, families and health care team were the main sources of information for the majority of mothers. This may be due to that many mothers are ignored and shy about asking for details resulting from closed communities. This result supported by **(Myrold and Wagner, 2015; Faheim and Amer 2019)** who found limited resources of information for caregivers of young children with disabilities, especially for infants with BP. This guideline fills this gap by helping as holistic resources for caregivers to utilize in order to achieve a high quality of life for both themselves and their children. So, for this reason, it is important to approach to mothers, so that health education programs and guidelines could bring significant improvements in their knowledge and practices about BP problems, so communication with mothers is a necessary factor in solving BP demands.

As regarding mothers' practices, the result of the present study showed that there were highly statistically significance improvements in mothers' practices immediately post and at follow up phases of guidelines implementations. **Vaz et al., (2010)** stated that providing mothers with experience in caring with their infant in daily activities improving quality of life. Children with palsy are dependent on mothers to assist and caring of, in their daily live activities therefore, the importance of improving mothers' practices provides them with experience regarding caring of their children. Additionally the study conducted by **Abdel-Kafy et al., (2013)**, reported that mothers were supplied with skills, activities they would typically practices by fitting them into their daily routine that help improve function of the affected extremity while maintaining the infant's well-being.

Most children with BP recover spontaneously and achieve near-normal to normal functions. Numerous show signs of improvement as early as 10 days after the onset, even without treatment. Often the eye in the affected part cannot be closed. The affected eye must be protected from drying up, or the cornea may be permanently damaged resulting in impaired vision. In some cases denture wearers experience some discomfort **(Balakrishnan, 2015)**. Therefore, mothers

play an active role in helping their children and caring with them effectively. Wherever, training mothers about practices related to BP as pain relieving, eye care, following up with doctor, mouth and dental hygiene, maintaining muscle tone and facial palsy yoga exercise, designed to maintain relieving pain and muscle tone, protecting and caring of affected eye, mouth and dental hygiene. Mothers taught how to gently do the exercises and encouraged to make them daily. Additionally, normal developmental activities explained to mothers and helped them to perform exercises twice per week (**National Institute of Neurological Disorders and Stroke, 2014**). Furthermore, the parents as educators must be able to recognize the basic features of their child, interests, temperament and especially the child's emotional features regarding the child's character (**Ceka and Murati, 2016**).

The essential of providing mothers of children with an evidence-based educational program to teach essential skills of children and clarify that BP was one of mentioned issues. An evidence-based practice intervention program aiming to improve mothers' knowledge and practice and children outcomes (**Siassakos et al., 2011**). Form the researcher point of view mothers' perception and awareness of practice related to BP as pain relieving, eye care, follow up with doctor, mouth and dental hygiene, maintaining muscle tone and facial palsy yoga exercise enhance better interaction with mothers and their children and provide mother with confidence about effective care providing.

According to the correlation between total knowledge of mothers and their personal characteristics, the current results revealed that there was a statistically significant positive correlation between total knowledge of mothers with their educational qualification at the pre- and follow up guideline's intervention phase. This finding is consistent with (**Al-Ayed, 2010 & Faheim and Amer 2019**) who conducted a study to assess the level of mothers' knowledge on certain aspects of child health care and demonstrated that positive correlation between mothers' level of education and knowledge, and practice providing to child through care. In addition, **Abuaraba, (2016)** emphasized that educational levels of mothers

linked to the lack of knowledge of the mothers related to brachial plexus. In addition, the majority of mothers were satisfied with their knowledge provided to them. On the other hand, the family as an institution has to create conditions for development of positive relationship towards work (**Ceka and Murati, 2016**). The researcher point of view recommended that mothers should be aware of knowledge and practice requiring caring for their children with BP because childcare was the first responsibility of mothers. This further support the study research hypothesis. Augmenting the results of present study, it apparent that education and training courses has a vital role in improving mothers' knowledge and practice toward BP education. Moreover, the result of the current study revealed that mothers' knowledge and practice were improved after program implementation. This could attribute to the fact that the significance and effectiveness of training course in enhancing mothers' knowledge and practice which play significant role in the quality of care providing and effective outcomes.

Conclusion

Based on the findings of the present study, it can be concluded that, there were highly statistically significant improvements in mothers' knowledge and practices immediately post and at follow up of guidelines implementations. Moreover, there were significant positive correlations between mothers' knowledge, practice and level of education immediately after and at follow up of guidelines implementation phases.

Recommendation

In the light of the findings of the present study, the following recommendations are suggested:

1. Provide continuous education and training for mothers having children with Bell's Palsy.
2. Early intervention to children with Bell's palsy to avoid further complications and handicaps from Bell's palsy.
3. Further study can be replicated on other hospitals using a large sample size to

clinically confirm the effectiveness of educational guidelines and generalize the results of the study.

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