

EFFECT OF EDUCATIONAL INTERVENTION ON KNOWLEDGE AMONG MOTHERS HAVING CHILDREN WITH MIXED CEREBRAL PALSY

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ABSTRACT

Background:

Cerebral palsy is occurring in approximately 2-2.5 of 1000 live births globally. It has been found that, 80% of the global prevalence of CP is in low resources countries that having larger populations. Cerebral palsy represents 67% of the severe motor disabilities in childhood. Research reported that the overall prevalence rates have no substantial changes for the birth year periods of 1985 to 2010. Intellectual, cognitive, and sensory deficits, speech disturbances, seizures, dental, and dietary difficulties are all common in children with CP.

Objective:

To assess the Effect of Educational Intervention On Knowledge Among Mothers Having Children With Mixed Cerebral Palsy

Methodology:

A one group pretest- posttest quasi experimental study design was used in this study. The Sample size of 58 mothers having children with mixed cerebral palsy was recruited through Nonprobability convenient sampling technique. A validated tool was used to assess the knowledge among mothers regarding pre and post educational program. Initially, Pre-assessment was conducted to obtain baseline scores of knowledge of CP among mothers, then the interventional sessions for a period of 6 months were delivered to the selected participants in a form of workshops and then post data were collected after intervention.

Results:

The study results revealed a significant effect of the educational intervention program on knowledge of mothers having CP children (Pre interventional knowledge score 5.97 ± 2.708 and post interventional knowledge score 16.12 ± 1.920) among mothers having CP children (p - value < 0.001).

Conclusion:

It is concluded that the education program has positive effect on knowledge and care among mothers having children with cerebral palsy

Key words: Knowledge, Cerebral palsy, educational intervention

INTRODUCTION:

Cerebral palsy (CP) is one of the most prevalent juvenile physical disabilities. Cerebral palsy is frequently accompanied with sensory, perceptual, cognitive, communication, and behavior impairments, as well as epilepsy and secondary musculoskeletal issues (1).

Children with cerebral palsy (CP) have physical, learning disability, social and behavioral difficulties that require specialized services and intensive care. Cerebral palsy has been recognized by John Little who attempted to define CP in 1853 (2). Cerebral palsy is one of the most common disorders that affect movement and posture development due to non-progressive disturbances of the brain occurred before, during or after infant birth (3).

Cerebral palsy is occurring in approximately 2-2.5 of 1000 live births globally. It has been found that, 80% of the global prevalence of CP is in low resources countries that having larger populations. Cerebral palsy represents 67% of the severe motor disabilities in childhood. Research reported that the overall prevalence rates have no substantial changes for the birth year periods of 1985 to 2010. Although some risk factors have been identified, including placental abnormalities, birth asphyxia, and neonatal medical problems, the etiology of CP is not well understood (4).

Recent research from low- and middle-income countries (LMICs) has found that the burden and severity of CP, as well as the related impairments, are higher in LMICs (5). Within the first five years of life, children with CP accomplish 90% of their gross motor potential, and even sooner for those with severe CP (6). Early intervention is thus critical for children with CP to achieve optimal motor and functional results.

Cerebral Palsy numbers in Pakistan are equally concerning. According to a research done in Karachi, Pakistan, 658 instances were gathered from 14 health organizations between 2010 and 2016, with 383 (58.2%) men outnumbering 275 (41.7%) girls (7). At the end of 2016, the pattern of CP occurrence exhibited an increase in men. Quadriplegia, diplegia, and hemiplegia were the most prevalent disorders, accounting for 186 (39.9%), 182 (39.0%), and 60 (12.8%) of the total cases, respectively. Monoplegia was the least prevalent (1 percent). Spastic muscle tone was the most common, accounting for 352 (53.4%), followed by atonic, ataxia, and athetoid/dyskinetic muscle tone, accounting for 77 (11.7%), 22 (3.3%), and 67 (10.1%), respectively (8).

The family is the basic unit of growth and experience, fulfillment or failure. It is also the basic unit of illness and health according to Nathan W. Ackerman. The state of ill-health to any one of the family members particularly to the children brings about imbalances in the total rhythm of the family. In tune with this thought the presence of mentally challenged child or children may affect the family balance among the parents, particularly to the mother. This circumstance requires support of emotional stability and flexibility from all the members of the family (9).

The future of a family to a very great extent lies on the mother. It is also depended very much on the home condition, health, support system, services and amenities in the household setting (10). According to Kanta Sharma, a sociologist and researcher who concentrates on Indian women and problems, points out that "those who are careful enough to take a

comprehensive view of the human life, attach as much value to the mothers' activities of producing and nursing children and keeping a family together. This statement proves to be best in an Indian context as mothers and their efforts inside the home are confined to their homes (11)

Raising a mentally challenged child necessitates emotional strength and adaptability on the moms' behalf(12). In the Indian setting, women are primarily responsible for the upbringing of their children. Whether the child's unique requirements are little or severe, the parents are always affected. Maintaining balance in the home requires help from family, friends, the community, or paid caregivers (13).

In the present era, mental disability is a major public health problem in the society. The disabled like CP children constitute a small part of the population of any society(14). Their upbringing, welfare and rehabilitation are obligatory for individuals closely related or committed to them. The households, which have disabled persons like CP child, need to be helped by health care providers where the role of nurses becomes vital(15). Nurses can play their role in rehabilitation and health care training of parents. Unfortunately Nurses involvement in rehabilitation care of CP children is not very visible (10).. This study can be a beginning to the role involvement of nurses in guiding and training mothers of CP children to boost their knowledge and enhance their care.

To attain child independence and community involvement, care of children with CP requires a multidisciplinary and integrated approach (16). According to findings, the pre interventional mean knowledge score was 13.10 ± 3 SD, which was improved to 23.82 ± 3.21 SD was determined to be statistically significant ($p.001$) (17). A study's findings revealed that the majority of the moms evaluated had inadequate understanding regarding cerebral palsy prior to the training program, where 44% of the study participants had unsatisfactory knowledge and 56% had satisfactory knowledge (18).

In another study Parents' awareness of the origin of CP, recognizing that motor involvement was prevalent in CP, knowledge of the disease's curability, and knowledge of special education improved significantly after seeing the video ($P<05$) (19). In another past study the total scores of mothers, knowledge for most of them (88.3%) were poor before educational program while, all of them (100%) immediately and nearly three quarters (71.67%) after one month of program implementation obtained good scores (20).

OBJECTIVE OF THE STUDY

To assess the Effect of Educational Intervention On Knowledge Among Mothers Having Children With Mixed Cerebral Palsy

MATERIAL AND METHODS

The aim of the present study was to assess the Effect of Educational Intervention On Knowledge Among Mothers Having Children With Mixed Cerebral Palsy in a public sector Multan Punjab, Pakistan. In this regard, a quasi experimental study was conducted. This study was conducted at the paed's neurology department of the Nishtar hospital Multan Punjab. The study participants were mothers of all patients coming to neurological OPDs having children with cerebral palsy. A nonprobability purposive sample of $n=58$ participants was recruited based on the following criteria.

$$1-\alpha = 95$$

$$d = 0.08$$

$$\mu = 10.8$$

$$\sigma = 0.31$$

$$\sigma^2 = 0.0961$$

$$n = 58$$

Please select the desired unknown:	Please enter the remaining values:
<input type="radio"/> Confidence level (%)	1 - α 95
<input type="radio"/> Absolute precision required	d 0.08
<input type="radio"/> Relative precision	ϵ 0.007407407407
<input type="radio"/> Population mean	μ 10.8
<input type="radio"/> Population standard deviation	σ 0.31
<input type="radio"/> Population variance	σ^2 0.0961
<input checked="" type="radio"/> Sample size	n 58

$$n = \frac{z_{1-\alpha/2}^2 \sigma^2}{d^2} \quad \text{or} \quad \frac{z_{1-\alpha/2}^2 \sigma^2}{\epsilon^2 \mu^2}$$

Only Mothers who are primary caregivers

- ▶ Mothers with age 20 to 50 years
- ▶ Mothers of those children who are diagnosed with Cerebral Palsy
- ▶ Mothers of those children who are with moderate and severe degree of severity with cerebral palsy
- ▶ Mothers of CP child with age 12 or below

And the exclusion criteria was

- ▶ Mothers as formal care givers (Nurses, Doctors)
- ▶ Working Mothers
- ▶ Mothers of those children who are having cerebral palsy but do not required assistance in routine activities

The rules and regulations set by the ethical committee of university of Lahore were followed while conducting the research and the rights of the research participants were respected. Permission was taken from head of the department of Pediatric Neurology clinic and OPDs Nistar Hospital Multan. Written informed consent was taken from all the participants. All information and data collection was kept confidential. Participants were kept anonymous throughout the study. A close ended questionnaire for assessing mothers' knowledge regarding CP was adopted from a previous study of Jacob Deepa, which consisted of 23 multiple choice questions regarding Cerebral Palsy. Each correct response was having Score of 1 while incorrect response was marked as 0¹⁷. Content Validity index testing was done to check the content validity for this developed knowledge based questionnaire. The CVI for knowledge

questionnaire is (0.90). The Reliability of the questionnaires are checked through Cronbach's Alpha after conducting the pilot study. The Cronbach's Alpha value for knowledge questionnaire is .773. All participants were given close ended questionnaires along with further detailed sheet of information. A written consent was implied to every participant along with the questionnaire. Introduction to every participant was done. Participants were questioned individually at the outpatient department of the given hospital where the assessment of the participants was done using data collection tool. After data collection it was entered and analyzed in SPSS version- 21. Quantitative variables were presented in the form of mean \pm standard deviation. Qualitative variables were presented in the form of frequency and percentages. Frequency distribution tables were used to present the emotional distress and self-efficacy levels among the study participants.

RESULTS

Table 1 Demographic characteristics of the participants (n=58)

Age in (Years)	F (%)
20-30 years	2 (3.4%)
31-40 years	44 (75.9%)
> 40 years	12 (20.7%)
Religion	
Muslim	51 (87.94%)
Christian	7 (12.06%)
Type of Marriage	
Unconsanguious Marriage	23 (39.66%)
Consanguious marriage	35 (60.34%)
Education Status	
Illiterate	7 (12.1%)
Primary	27 (46.6%)
High School	13 (22.4%)
Graduation or Above	11 (19%)
Type of family	
Nuclear family	5 (8.6%)
Joint family	48 (82.8%)
Single Parent	5 (8.6%)
Number of CP Children	
1 Child	40 (68.96%)
2 Children	15 (25.86%)
3 or more children	3 (5.17%)
Years of Caring for CP Child	
1-5 years	30 (51.72%)
6-10 years	23 (39.66%)
>10 years	5 (8.6%)

Table 1 shows that 2 (3.4%) study participants were between the ages of 20-30 years of age, 44 (75.9%) were aged 31-40 years and remaining 12 (20.7%) were more than 40 years of age. It was also found that 51 (87.94%) participants were Muslims and 7 (12.06%) were Christian participants. Furthermore, it was also shown that that 23 (39.66%) of the study participants were having Unconsanguineous Marriages and on the other 35 (60.34%) of the study participants were having Consanguineous Marriage. Moreover, the findings also indicated that 7 (12.1%) of the participants were illiterate, 27 (46.6%) of the study participants had primary education while 13 (22.4%) of the study participants had high school education and 11 (19%) were having education status graduation or above. Regarding type of family of the participants, it was revealed that 5 (8.6%) of the participants belonged to nuclear family, 48 (82.2%) of them were having joint family system and 5(8.6%) were single parent family. Number of CP children in a family was assessed where 40 (68.96%) families had only 1 CP child, 15 (25.86%) families had 2 CP children and 3 (5.17%) families had 3 or more CP children to take care of. The families were inquired for how long they care for their CP children where 30 (51.72%) of the participants revealed that they are caring for their CP child for 5 years or less, 23 (39.66%) said that they are caring for 6 to 10 years for their CP children and 5 (8.6%) study participants caring for their CP children for more than 10 years.

Table 2 Mothers' Knowledge Pre, Post assessment (n=58)

Knowledge	Pre [n (%)]	Post [n (%)]
Poor Knowledge	53(91.4)	0 (0.00)
Fair Knowledge	5(8.6)	13(22.4)
Good Knowledge	0(0.00)	45(77.6)

The above 2 revealed the participants' knowledge levels in the pre interventional and post interventional groups. Results of the study indicated that before the interventional sessions a good majority 53(91.4%) of the participants were having poor knowledge, 5 (8.6%) were having fair knowledge and one study participant had good knowledge regarding Cp. After the educational intervention, there was no any participant with poor knowledge regarding CP whereas only 13 (22.4%) of the participants had fair knowledge and majority of the participants 45 (77.6%) had good knowledge in the post intervention assessment. Finding revealed that there was no participant having poor knowledge in the post interventional phase.

Table: 3 Comparison of knowledge before and after intervention. (N=58)

Variable	Pre-intervention	Post-intervention	Mean difference
	Mean \pm SD	Mean \pm SD	
Knowledge	5.97 \pm 2.708	16.12 \pm 1.920	-10.15

* *p* value was obtained by paired *t* test with 0.05 level of significance.

In this table 3, included on knowledge and care, in which pre-knowledge total mean \pm SD score was 5.97 ± 2.708 and in the post test, the knowledge mean score was increased to 16.12 ± 1.920 . The mean difference between pre and post knowledge score was -10.15.

Table.4 Mean +SD of participants' knowledge pre, post Intervention (N=58)

Variables	Pre-intervention	Post-intervention	<i>t</i>	<i>P</i> value
	Mean \pm SD	Mean \pm SD		
Knowledge	5.97 ± 2.708	16.12 ± 1.920	-25.230	.000

Table 4 indicated the testing of hypothesis where paired sample *t*-test was used to evaluate the effect of educational intervention on mothers' knowledge and care regarding CP. A very highly significant mean difference was found (-10.15) in knowledge of mothers between pre and post interventional scores regarding CP children home management *t* (-25.230) =, *p* value=0.000, with mean and SD (5.97 ± 2.708 vs. 16.12 ± 1.920).

DISUSSION

Finding revealed that majority of the participants 44 (75.9%) were aged 31-40 years and 12 (20.7%) were more than 40 years of age. Similar finding was observed in a previous study where the age of mothers was ranged from 22-53 years with the mean of (32.792 ± 6.666) (21). In a previous research of a similar kind, it was discovered that the majority (2.0%) of the moms were between the ages of 20 and less than 25 years, while almost half (48.0%) of the mothers were between the ages of 35 and 40 (20).

A earlier survey, however, came to a different conclusion, finding that more than half of them (52.3%) were in the 30+ age range, with a mean age of 30.47.5 years (18). Similar to the current study, a prior study with opposing results indicated that the mean age (years) SD of these 26 parents was 27.1 4.1 (range 21-35), which is a very low age in terms of years (22).

Also, it was discovered that 7 (12.06%) and 51 (87.94%) participants in the current research were Christians. In contrast, an Indian study's findings showed that the majority of participants (82.5%) were of the Hindu faith (17). This difference is because of the religious difference of the population.

Also, it was shown that 35 (60.34%) of the research participants had consanguineous marriages whereas 23 (39.66%) of the individuals had non-consanguineous marriages. On the other hand, a different research found that more than two thirds of moms (68.3%) did not have consanguinity, whereas 31.6% did, and (57.8%) were second cousins (21). Similar findings from another study showed that more over half of the moms examined (61.5%) did not have a blood relation with their husbands (18). Also, the majority of mothers 80.0% had no consanguinity of parents (20).

Also, the results of this survey showed that 7 (12.1%) of the participants were illiterate, 27 (46.6%) had just completed their elementary education, 13 (22.4%) had completed high school, and 11 (19%) had graduated from high school or above. A previous survey that looked at

mothers' levels of education found that 41.6% of them could read and write, while 23.33 percent had completed secondary school, 18.3 percent had finished university, and 16.6 percent were illiterate (21). In contrast to the results of the present study, a prior investigation indicated that 46.2% of the women under review had a secondary or certificate level of education (18). Comparable findings from another survey showed that 44.0% of them had at least a secondary education (20).

In terms of the participants' family structures, it was found that 5 (8.6%) of them belonged to nuclear families, 48 (82.2%) had joint family systems, and 5 (8.6%) had single-parent families. Contrary to the current study's findings, an earlier study indicated that 7.5% of the individuals were from joint households (17).

There were 40 (68.96%) households with just one CP kid, 15 (25.86%) families with two CP children, and 3 (5.17%) families with three or more CP children to care for. Similar to this, 65% of families in a prior research had two children (17). Also, according to (36.9% and 26.2%, respectively), more than a quarter of them had two or more than three children in the home (18).

The current study's findings also showed that before the interventional sessions, 53 (91.4%) of the participants had inadequate understanding about cerebral palsy, while 5 (8.6%) had fair knowledge. Following the educational intervention, the majority of participants, 45 (77.3%) had good knowledge, while 13 (22.4%) had fair knowledge. The study also discovered that the pre-knowledge total mean SD score was 5.972.708 and the knowledge means score climbed to 16.121.920 in the post-knowledge exam. The average change in knowledge score between the pre- and post-test was -10.15. Similar to that, this study demonstrated a very highly significant mean difference (-10.15) in mothers' knowledge of CP children's home management between pre and post interventional scores ($t(-25.230) =$, $p \text{ value} = 0.000$).

An earlier study revealed that 90% of primary care providers had insufficient information and 10% had knowledge that was only somewhat competent prior to the education intervention. The results of this study demonstrate an improvement in the knowledge of primary care providers of children with CP about providing at-home care; the pre-assessed knowledge score (Mean + SD) was raised to 23.83 + 3.21 (Mean + SD) in the post-intervention period, which is statistically significant ($p .001$) (17).

Another previous study found that the majority of mothers' knowledge scores (88.3%) were low before to the educational program, but that all of them (100%) improved immediately and almost three-quarters (71.67%) did so after the program's implementation had been in place for a month (21).

According to results of a previous research, more than a quarter of the mothers who participated in it were adequately informed on the condition's diagnosis, causes, general symptoms, and preventative measures (pre-program results of 38.5%, 47.7%, 47.7%, and 38.5%, respectively). Moreover, there was a statistically significant change in the total mothers' awareness about children with cerebral palsy before, immediately after, and after six months of the program's implementation (18).

Another study found that all features of the illness had very statistically significant differences (definition, causes, symptoms, complications, investigations, prevention and

treatment). Concerning complications, almost half (50.0%) of the investigated moms had erroneous information, which dramatically improved after the training to 50.0% incomplete correct & 44.0% complete right answers. About three-quarters (74.0%) of the investigated moms had wrong information in terms of prevention, but after the program, their knowledge greatly improved, falling to 48.0% for incompletely right responses and 48.0% for completely correct ones (20).

CONCLUSION

The present study concluded that, improved mothers knowledge was a positive predictor of the scores of mothers' practice. So, the teaching program was an effective in improving the mothers' knowledge regarding care of their children with cerebral palsy.

RECOMMENDATIONS

To enhance the knowledge and care among mothers of cerebral palsy children, some interventional studies are needed at national level. Support groups might be further established to raise care providers' understanding of and concern with CP, which could help them identify the most appropriate and timely interventions for their charges.

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