

## Effects of health education on improving intellectual knowledge among parents of people with epilepsy

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World Journal of Biology Pharmacy and Health Sciences, 2023, 16(02), 142–148

Publication history: Received on 03 October 2023; revised on 13 November 2023; accepted on 16 November 2021

Article DOI: <https://doi.org/10.30574/wjbphs.2023.16.2.0476>

### Abstract

Epilepsy is one of the most common neurological disorders with a worldwide prevalence between 5 and 10 per 1000. Among the world population, 50 million people are reported to be affected by epilepsy and approximately 85% are the ones residing in developing countries. This study aimed to assess the intellectual knowledge among parents of people with epilepsy before and after health education. Quasi-experimental design (Pretest & posttest) was used. The study was conducted at one of the leading tertiary care hospitals in Lahore, Pakistan. Study participants will be selected using a convenient sampling method. The sample size is calculated by using the formula in Open Epi. The sample size was 370 upon 95% of the confidence interval but due to the limitation of time and according to the availability of participants, 100 subjects were interviewed through a pre-designed questionnaire. Study results demonstrate a significant difference between participants' scores assessed pre and post-intervention. The Pretest score was recorded as 44.35 and the post-test assessment was measured as 52.48. The results of this study strongly suggest that educating the parents of children with epilepsy can help enhance their abilities to manage their children while having seizures at home. This can help minimize any chaotic situations and utilize the resources effectively.

**Keywords:** Epilepsy; Neurological; Disorder; Prevalence; Parenting

### 1. Introduction

Epilepsy embodies around 0.7% of the worldwide burden of diseases and is especially predominant and associated with substantial infirmity in low- and middle-income nations in Latin America<sup>1</sup> and fences to care including shortage of human resources, medical facilities, and resources<sup>2</sup>. In Pakistan, rate of occurrence of epilepsy is very alarming being more prevalent in people with low socioeconomic backgrounds and very limited medical resources. Considering the changes over the past 20 years little is known about the current epidemiological characteristics of epilepsy in Pakistan<sup>3</sup>. The standard characterization of epilepsy as an individual experiencing two or more gratuitous seizures more than 24 hours apart has been extended also to embrace those having one seizure and a great probability (more than 60%) of having another<sup>4</sup>. Epilepsy is a complex of symptoms with several determinants and a solid genomic tendency instead of a situation with one symptom and basis. These developments have given rise to the novel classification of epileptic seizures and epilepsies. A detailed clinical history and a reliable eyewitness account of a seizure are the cornerstones of the diagnosis<sup>5</sup>. Neurological insult, such as traumatic brain injury, hypoxia, or febrile seizures, is associated with neuronal death, dysfunctional synaptic modification, and the generation of a hyper-excitability network, which could predispose to spontaneous recurrent seizures<sup>6</sup>. Status epilepticus (SE) is a prevalent, fatal health disorder that entails early identification and treatment. In children, it may be part of a clinical exhibition of diverse disorders, as well as the first epileptic event<sup>7</sup>. Epilepsy in children not only affects their cognition, well-being, and behavior, but also impacts caregivers, including employment and household work, emotional and physical health, relationships of caregiver with spouse, other children and friends, and self-efficacy for caregiving<sup>8</sup>. Parents often had difficulty accessing professional knowledge about epilepsy. Early onset epilepsy often has a very significant impact on family functioning hence, parents

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want emotional support to extend beyond the initial diagnosis<sup>9</sup>. Therefore, this study sought to assess the knowledge among parents of people with epilepsy before and after the health education.

## 2. Material and methods

### 2.1. Study Design

Quasi experimental design (Pretest & posttest) will be used to assess the significance of health education on improving intellectual knowledge and family functioning among parents of people with epilepsy

### 2.2. Study Site

Study will be conducted at a tertiary care hospital in Lahore, Pakistan.

### 2.3. Target Population

All people with epilepsy of Lahore, Pakistan.

### 2.4. Sampling Technique

Study participants will be selected using convenient sampling method.

### 2.5. Inclusion Criteria

Any subject meeting the following criteria will be excluded from the study.

- The individual who has a definitive diagnosis of epilepsy documented in their medical chart.
- The individual who has experienced seizures recently i.e in <12 months span from the date of interview

### 2.6. Exclusion Criteria

Any subject meeting the following criteria will be excluded from the study.

- The individual who has any physical disability.
- The individual who has not experienced any seizures recently i.e. in <12-month span from the date of interview

### 2.7. Sample Size

Sample size is calculated by using formula in Open Epi. The sample size was 370 upon 95% of the confidence interval but due to limitation of time and according to the availability of participants, 100 subjects were interviewed through pre designed questionnaire.

**Table 1** Sample size determination

Sample Size for Frequency in a Population				
Population size(for finite population correction factor or fpc)(N):				10000
Hypothesized % frequency of outcome factor in the population (p):				50%+/-5
Confidence limits as % of 100(absolute +/- %)(d):				5%
Design effect (for cluster surveys-DEFF):				1
Sample Size(n) for Various Confidence Levels				
	Confidence	Level (%)	Sample Size	
	95%		370	
	80%		162	
	90%		264	
	97%		450	

99%		623		
99.9%		978		
99.99%		1316		
Equation				
Sample size $n = [DEFF * Np(1-p)] / [(d^2 / Z^2_{1-\alpha/2} * (N-1) + p * (1-p))]$				

## 2.8. Ethical Considerations

The rules and regulations set by the institutional review board were followed while conducting the research and the rights of the research participants were respected. Information sheet with detailed description of study aim and purposes was given to the study participant.

## 2.9. Data Collection Procedure

After approval from the institutional review board/ethical review committee of a leading tertiary care hospital, Lahore, data collection procedure was initiated. Parents of the patients admitted with diagnosis of Epilepsy and of those coming for follow up to the outdoor patient department were interviewed (pre assessment) using the pre-designed questionnaire (attached annexure I). After completing the pre-assessment, an educational/interventional program was conducted for one week. Upon completion of educational/interventional program, data will be collected using the same tool (post assessment) to observe any change in the knowledge of the participants.

## 2.10. Data Analysis Procedure

Statistical Package for Social Sciences (SPSS) version 24.0 will be used for data entry and analysis. Initial analyses included; computing frequency distribution for categorical variables, mean values ( $\pm$ standard deviation) and median values to describe the continuous data with and without normal distribution, respectively. T test was computed to compare pre and post interventions data and to evaluate the significance of interventions on health status of participants.

## 3. Results

A total of 100 participants were interviewed at the hospital using the pre-designed questionnaire (attached annexure I). The tool was divided in two components i.e., demographic variables and questions for assessment of intellectual knowledge regarding epilepsy. Thirty participants came from remote area for follow up and 70 were from urban area while 27 patients were accompanied by their fathers and rest of the parents interrogated were mothers of epileptic individuals. When asked that for how many years.

**Table 2** Demographic variables of the participants

S No.	Variables			
1	Area of residence			
	Rural Area	Urban Area		
	30	70		
2	Relationship with the epileptic patient			
	Father	Mother		
	27	73		
3	Years since your child was diagnosed			
	<1 year	1-2 years	2-5 years	>5 years
	35	33	23	9
4	Total number of children/siblings			

	1	2	3	≥ 4
	9	29	41	21
5	Number of children/siblings affected with epilepsy			
	1	2	3	≥ 4
	69	28	3	0

All the subjects were questioned to assess their intellectual knowledge at the beginning of data collection for pretest assessment. Assuming the maximum score for the questionnaire as 64, the average pretest score of the participants was calculated as 44.35. Table 4.2 below indicates the participants' responses.

**Table 3** Pretest Assessment of intellectual knowledge of participants

Pre-test Assessment					
S No	Questions	Strongly Disagree	Disagree	Agree	Strongly Agree
1	Epilepsy is a form of mental illness or insanity	7	3	20	70
2	I would be well prepared to handle a seizure if my son/daughter had one at home	41	44	13	2
3	I feel I am very knowledgeable about epilepsy	29	60	11	0
4	I am familiar with different types of seizures and what they look like	97	1	2	0
5	When someone is having a seizure, it is a medical emergency and 1122 should be called immediately.	3	1	13	83
6	Epilepsy and epilepsy medications can have a significant effect on individual's mood, memory, and learning	6	19	25	50
7	I would like to have more general information about epilepsy	0	0	12	88
8	I would like to have more information about how to respond when my son/daughter is having a seizure	0	0	24	76
9	Persons with epilepsy can safely operate machinery	15	23	56	6
10	The individual with epilepsy does not possess a normal life expectancy	54	15	22	9
11	Persons with epilepsy should be prohibited from driving	3	12	19	66
12	Individuals with epilepsy are also mentally retarded	86	9	5	0
13	Individuals with epilepsy are accident-prone	0	5	1	94
14	The offspring of parents with epilepsy will also have epilepsy	0	19	27	54
15	Epilepsy is not a contagious disease	6	27	0	67
16	Individuals with epilepsy can cope with a 40-hour work week	50	11	23	15
Overall, Knowledge		44.35			

After delivering health education to the participants for 1 week, they were interviewed again using the same questionnaire for posttest assessment. The average posttest score was calculated as 52.48. Detail of posttest responses are shown in Table 4.3.

**Table 4** Posttest Assessment of intellectual knowledge of participants

<b>Post-test Assessment</b>					
<b>S No</b>	<b>Questions</b>	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Agree</b>	<b>Strongly Agree</b>
1	Epilepsy is a form of mental illness or insanity	0	0	0	100
2	I would be well prepared to handle a seizure if my son/daughter had one at home	0	7	57	36
3	I feel I am very knowledgeable about epilepsy	0	4	41	55
4	I am familiar with different types of seizures and what they look like	1	8	6	85
5	When someone is having a seizure, it is a medical emergency and 1122 should be called immediately.	5	75	18	2
6	Epilepsy and epilepsy medications can have a significant effect on student's mood, memory, and learning	0	8	46	46
7	I would like to have more general information about epilepsy	8	91	1	0
8	I would like to have more information about how to respond when an individual is having a seizure	27	69	2	2
9	Persons with epilepsy can safely operate machinery	28	63	9	0
10	The individual with epilepsy does not possess a normal life expectancy	80	13	6	1
11	Persons with epilepsy should be prohibited from driving	2	5	11	82
12	Individuals with epilepsy are also mentally retarded	86	9	5	0
13	Individuals with epilepsy are accident-prone	1	9	89	1
14	The offspring of parents with epilepsy will also have epilepsy	63	29	6	2
15	Epilepsy is not a contagious disease	2	1	5	92
16	Individuals with epilepsy can cope with a 40-hour work week	2	4	29	65
	Overall knowledge	52.48			

As mentioned in the methodology section that Pretest and posttest scores were analyzed using two tailed t-test. Two scores were compared for their mean and standard deviation. Mean value for both scores was 45.56 and 52.42 respectively for pretest scores and posttest scores. Standard deviation measured as 3.99 for the two scores. T value was calculated as -17.182 (this value is in negative because posttest score was subtracted from pretest score) and significance level came in after application of t test as 0.00 which falls under 0.05 displaying how effective the health education was.

**Table 5** Value of paired sample t-test

	<b>Mean</b>	<b>St. Deviation</b>	<b>t value</b>	<b>Significance</b>
Pretest knowledge score	45.56	3.99	-17.182	0.00
Posttest knowledge score	52.42			

#### 4. Discussion

Result of this study shows that empowering the parents of epileptic children with proper education about epilepsy can help the parents to lead a life free of any chaos and it can help preventing further ailments caused by the disease. Result of this study are strongly supported by the previous research evidence. The findings show that 100% (n=100) consider epilepsy as mental illness which is also evidenced in previous studies. When asked to handle their children at the time of having seizures, 85% parents denied their ability to manage the seizure but after attending health education 93% agreed that they are prepared to handle their children at home while having seizures. Kissani et al. had similar findings in their study suggesting the importance of health education<sup>2</sup>.

During pretest assessment 89% (n=89) parents indicated that they do not have any knowledge regarding epilepsy and after attending the education session 96% (n=96) parents showed to possess enough knowledge about epilepsy. Similar findings were reported by Ullah et al. where 75% parents had developed good knowledge after the intervention. Before joining health education delivered as study intervention, 98% (n=98) participants did not possess any information regarding different types of seizures but 91% (n=91) answered positively after the session<sup>10,11</sup>. Ninety six percent (n=96) parents considered epilepsy as medical emergency in their pretest assessment and 80% (n=86) participants denied it as a medical emergency in their posttest assessment.

Sixty two percent (n=62) attendants of patients answered that individuals with epilepsy can safely operate machinery but post intervention this response shifted drastically and 91% (n=91) disagreed that they cannot work with heavy machinery in a safe manner. Talking about life expectancy, 31% of the parents thought that individuals with epilepsy does not live a normal life expectancy but after taking health education training 93% parents disagreed to the statement and indicated that their children can have a normal life expectancy<sup>4</sup>. Eighty one percent (n=82) participants responded that the offspring of parents with epilepsy will also be born with epilepsy and after the taking health education 92% (n=92) disagreed to the declaration stressing on the fact that children of parents with epilepsy can be born healthy<sup>12</sup>.

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#### 5. Conclusion

The results of this study strongly suggest that educating the parents of children with epilepsy can help enhance their abilities to manage their children while having seizures at home. This can help minimize any chaotic situations and utilize the resources effectively. More efforts must be organized towards training the parents of epileptic children because this is how they can deal with lifelong ailments, it becomes very difficult to bring your child to the hospital or medical facility every time he/she has seizures. When a patient is diagnosed with epilepsy, he/she is usually admitted inpatient or outpatient department, where doctors or nurses can educate the parents or siblings accompanying the patient.

More studies using the same parameters must be conducted at a larger scale or commercial level where time and money are no constraints and it can yield very fruitful results which can help minimize the chaotic situations and effective utilization of resources in healthcare.

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#### Compliance with ethical standards

##### *Disclosure of conflict of interest*

No conflict of interest is to be disclosed.

##### *Statement of informed consent*

Informed consent was obtained from all individual participants included in the study.

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