

Impacts of Seizure Care Simulation Intervention on Mothers' of Epileptic Children Efficiency, Believes, Anxiety and Seizure Care

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Abstract Background: Epilepsy is one of the most common neurological disorders among children. Lack of knowledge about safe care among mothers whom are the first care providers will affect children life and mother self efficiency. **Aim of the study;** to assess impacts of seizure care simulation intervention on mothers' of epileptic children efficiency, believes anxiety and seizure care. **Design:** Quasi experimental research design was used. **Sample & setting;** 73 mothers admitted with their epileptic children in neurology & pediatric departments from June - July 2018 at Menofya university hospital /Shibeen El Kom and accept to participate in the study were included. Intervention was given to them into 5 sessions post test was conducted after one month post hospital discharge. **Results;** 70% of mothers aged 20-40 years and 78% of them their epileptic children were male. Regarding subjects knowledge; 60% of them had correct answer post the intervention related to definition of epilepsy, 70% causes of epilepsy and 80% of them know correctly pre seizure manifestation, also about two thirds of them post one month from the intervention had correct answer regarding care pre seizure attacks, care during seizure and correct care post seizure attacks with significant difference were found pre and post one month from intervention. Regarding maternal self efficiency level nearly all mothers post one month from the intervention very sure that; they can know if their child has seizure attack before it happen and can manage seizure effectively. Maternal believes about epileptic children abilities were improved post one month from intervention. There was significant difference in maternal seizure management practice pre and post one month from intervention also maternal anxiety was decrease post one month from intervention. **Conclusion:** Seizure care simulation intervention produces significant improvement in maternal knowledge, change their attitude and improve their care practice which decrease maternal anxiety and raise their self efficiency. **Recommendation:** Mothers of epileptic children need special preparation through well planned educational intervention which support them to practice effective physical & psychological care and maintain their physical and psychological safety, well being and decrease their anxiety level regarding their children health and all family members wellbeing.

Keywords: seizure care simulation intervention, epilepsy, self efficiency and anxiety

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1. Introduction

Epilepsy is a common medical illness estimated that 0.5-1% of all children have epilepsy, with the majority presenting during infancy or early childhood. Epilepsy consider most serious neurologic disorders making it second to stroke. About 50 million people worldwide have epilepsy [1]. About 125,000 new epilepsy cases occur yearly [2]. Epilepsy is a common neurological condition that associated with recurrent seizures and about 4-8 cases from 1000 children suffered from epilepsy in the developing countries [3,4]. Epilepsy prevalence in Egypt was 6.98 / 1000 [5,6]. It is estimated that worldwide,

10.5 million children under the age of 15 years have active epilepsy [7]. It is a common chronic neurological disorder characterized by uncontrolled excitability and recurrent unprovoked 3-5 seizures. It is a collection of different types of seizures that vary in severity, appearance, cause, consequence and management [2]. Epileptic seizures often cause impairment of consciousness leaving patient with risk of bodily harm and often interfering with education and employment [8]. Over 30% of people with epilepsy do not have seizure control even with the best available medications. Compliance with medication is a major problem because of the long term therapy [9]. The most common symptoms of epilepsy are; headache, changes in mood or energy level, dizziness, fainting, confusion and memory loss [10].

Epilepsy is a burden disorder [11] which affects the quality of life of child and their families. Epileptic child has Loss of control, independence, low self-esteem, fear, depression, stigmatization, lifestyle, social & employment restrictions, and financial strains [12]. Children with epilepsy have more emotional, behavioral, and cognitive difficulties than children in the general population [13,14,15]. Prediction of epileptic child condition provides time to administer preventive measures to terminate the seizure before it happens also give epileptic child enough time to remove themselves from harms [16]. Seizures are the most frequent reason for visits to the paediatric neurologist office and approximately 50% of epileptic cases begin in childhood or adolescence. Self-efficacy is one's belief in competence to successfully carry out a particular task or achieve a particular purpose [17]. It is an important element in the management of epileptic children. Low levels of self-efficacy in seizure management have a significant relationship with negative attitudes toward epilepsy as a disease, concerns about seizures and attacks with greater severity, less family support and management, and more depressive symptoms also will affect [18].

The psychosocial impact of epilepsy on the child and his family's everyday life depends on the severity of the epilepsy, complexity of the clinical management, the meaning of the illness to the child & family, and society as a whole, restrictions in the child's and families, the child's and family's innate coping abilities; and the level of social support and extent of resources available to deal with the epilepsy [18,19]. Families of a child with epilepsy have been found to experience significantly more stress, anxiety, and restrictions in family life than other families. 50% of mothers of children with epilepsy are at risk of depression [20]. Parents of children with epilepsy may also be at an increased risk for symptoms of anxiety disorders [21]. Women are significantly more likely than men to develop an anxiety disorder throughout their lifespan [22].

Simulation is an educational tool provide opportunities for safe, practice and clinical skills acquisition. It has demonstrated transfer of skills to actual clinical scenarios, which has led to improved care, health and clinical outcomes [23]. The use of simulation as a learning modality for supporting caregivers to manage seizure, has the potential to positively impact them to function better [24]. Simulation helps caregivers to practice and managing stressful events in actual situation [25]. There is a relationship between family-centered care and caregiver satisfaction, more efficient use of health services and caring for children with special needs [26].

1.1. Significant of the Study

Mothers' awareness about epilepsy would result in positive attitude toward the disease and practices competent care toward their epileptic children. Epileptic seizures often cause impairment of the child consciousness level which leaving him at risk of bodily harm and increase maternal fear about the child life also mothers worry about their abilities to provide effective seizure care and their epileptic children health. Seizure care simulation intervention provided a window into mothers' abilities to apply knowledge of seizure management in a stressful

situation and cover gap in maternal knowledge, provide opportunities for mothers to experiment care in real situation and provide feedback about their stressful point to the researchers.

2. Subjects and Methods

2.1. Study Aim

This study aimed to assess impacts of seizure care simulation intervention on mothers' of epileptic children efficiency, believes, anxiety and seizure care practice.

2.2. Subjects

Convenient sample of all mothers admitted with their epileptic children at paediatric and neurology departments from June - July 2018 and willing to participate in the study were included their number was 73 mothers (48 of them admitted at pediatric department and 25 admitted at neurology department).

2.3. Research Questions

Is seizure care simulation intervention improves maternal self efficiency?

Is the intervention improve maternal believes regarding epileptic children's abilities?

Is maternal care of their epileptic children improved post intervention?

2.4. Setting

Pediatric and neurology departments of Menofyia university hospital /Shibeen El Kom, Menofya, Egypt.

2.5. Type of the Study

It is an intervention study.

2.6. Design

Quasi experimental research design.

2.7. Tools of Data Collection

a. Questionnaire sheet which has 4 parts;

- **Part one** to assess social characteristics' of studied subjects.
- **Part two** used to assess mothers ' knowledge about; definition of epilepsy, causes of epilepsy, precipitating factors of seizure, pre seizure manifestation, care pre seizure attacks, care during seizure and care post seizure attacks (pre and post one month from intervention was done).
- **Parts three** assess maternal self efficiency regarding; Know pre manifestation before seizure occurrence, can manage seizure effectively, Know when to contact emergency department, able to protect child from harm at seizure time and able to give correctly rescue medications(pre and post one month from intervention was done).

- **Part four** assess maternal management practice of epileptic child; pre seizure attack, during seizure attack and post seizure attack (pre and post one month from intervention was done).

*Reliability of the Questionnaire sheet; its reliability was estimated it show a positive significance with ($r=0.84\%$).

b. Taylor manifest anxiety scale: It was created by Janet Taylor in 1953 [27] its validity and reliability were tested by Connor, Lorr, & Stafford, in 1956 [28]. It was used to compare maternal manifest anxiety level pre and post one month post intervention. The scale consists of 38 items which answered by yes or no; if the respondent answer with yes given one score if answered with no given zero and total score was summed for all items. High Score was given if the summed results ranged from 16-38 it indicate high anxiety level, intermediate scores was given if the summed results ranged from 6-15 reflect intermediate level of anxiety and low scores was given if the summed results ranged from 0-5 indicate low level of anxiety. The scale was modified and translated into Arabic by the researchers then was handed to panel of experts in paediatric nursing field to assess the coverage, relevancy and clarity of items. Based on their recommendations, few changes were done. Scale reliability was tested post Arabic translation ($r=0.80\%$).

2.8. Ethical Consideration

The study was approved by ethical committee of the hospital paediatric department. Confidentiality of the information was maintained for each study subject and data used only for research purpose also a written potential participant' agreement was a prerequisite to be included in the study.

2.9. Administrative Design

An official permission was obtained from the head of the paediatric department before conducting the study.

2.10. Pilot Study

A pilot study was conducted on 10 mothers to test the clarity and simplicity of the study tools. Necessary modifications were done and mothers whom participated in the pilot study were excluded later from the main study sample.

2.11. Methods

- A review of local and international references was carried out to get acquainted with aspects of the research problem and the study tools.
- Based on the results of the pilot study and literature review; simulation based intervention was formulated by the researchers to cover all items of safe epileptic children care, meet maternal expectation answer all maternal questions which alleviate maternal anxiety.
- Data was collected from June - July 2018. Mothers

were met in groups ranged from 2-5 mothers according to the situation during afternoon shift to avoid crowded in the department and doctor round. The researchers go to the department three times weekly.

2.12. Seizure Care Simulation Intervention

- It was prepared by researchers which explain definition of epilepsy, causes of epilepsy, seizure trigger, manifestation of epilepsy, pre seizure manifestation, causes, management and complications, safe care provided to child pre seizure, care during seizure attack and safe post seizure care.
- Seizure intervention were demonstrated to mothers through video illustrate all aspects of care.
- It was discussed to mothers in 5 sessions; each session was about one hour according to mothers readiness; 1st for introducing the aim of the study to mothers, take their permission and pre test format of the questionnaire and 2nd session for discussing epilepsy definition, predisposing factors, seizure definition, trigger of seizure, management of epileptic child and seizure management. Regarding third session it was used for practical part of the intervention the researchers used seizure care simulation intervention video to mothers which demonstrate all items of care to the epileptic child before seizure occurrence, how to identify per seizure triggers. During the 4th session the researcher illustrate seizure care to maintain child safety, care during seizure attacks through video demonstration illustrate how to effectively ensure adequate ventilation, protect child tongue, protect child from injury and how to maintain child safety during seizure attack.
- A clear explanation was given to mothers about how to record attacks, how to reassure child and maintain comfortable environment which maintain their sleeping post the seizure attack and Fifth session was used for maternal demonstration of care pre, during and post seizure in each group and ending the study with subjects.
- Mothers' were given opportunities during their hospitalization period to experiment care with seizure management until they verbalized self confidence and readiness for providing their children intervention.
- Post test were done after one month from hospital discharge for each mother during their follow up in the outpatient clinic.

2.13. Statistical Analysis

The collected data were organized, tabulated and statistically analyzed using SPSS (Statistical Package for the Social Sciences version 20). Descriptive statistics, including frequencies and percentages were calculated for each item. T-test was used to compare maternal knowledge, management practice of seizure, self efficiency, anxiety level pre and post one month from intervention was done.

3. Results

Table 1. Subjects' social characteristics

Items	No	%
1. Mothers' Age:		
• 20 -40	51	70
• 41 – 60	22	30
2. Mothers' education:		
• Collage.	29	40
• Diplomas / secondary.	31	42
• Uneducated	13	18
Family monthly income:		
• < 1000	21	29
• 1000 – 2000	5	7
• 2000- 3000	47	64
4. Epileptic child sex:		
• Male.	57	78
• Female.	16	22
5. Age of epileptic child:		
• < 2 years	18	25
• 2-5 years	27	37
• > 5 years.	28	38

From Table 1 it was clear that ; More than two thirds of mothers' aged from 20-40 years, 42 % of them had diploma or secondary school, 64% of them their family income ranged from 2000-3000 Egyptian pound monthly and 78% of mothers their epileptic children was male and aged more than 5 years old.

Table 2. Maternal knowledge pre / post intervention

Areas of knowledge	Correct answer				T Test	P
	Pre		Post			
	No	%	No	%		
• Epilepsy definition.	12	16	44	60	5.632	0.003
• Causes of epilepsy.	3	4	51	70	6.230	0.044
• Seizure precipitating factors	5	7	47	64	5.214	0.032
• Pre seizure manifestation.	6	8	58	80	3.201	0.023
• Care pre seizure attack.	7	10	48	66	3.547	0.033
• Care during seizure.	4	5	47	64	7.365	0.032
• Care post seizure attack.	2	3	51	70	4.856	0.044

As clear from Table 2; majority of mothers had correct answer post the intervention related to; definition of epilepsy 60%, 70% causes of epilepsy, 64% know precipitating factors of seizure, more than two thirds of them know correctly pre seizure manifestation(80%), also about two thirds had correct answer regarding care pre seizure attacks, care during seizure and correct care post seizure attacks compared with 16%,4%, 7%, 8%,10% 5% and 3% only of them for the above mentioned items respectively with significant difference was found regarding all the above mentioned items pre and post one month from the intervention.

Table 3 nearly all mothers post the intervention very sure that they can know if their child had seizure before it happen , can manage seizure effectively, know when need to contact emergency department, can protect child from harm during seizure attack, and also very sure they can able to give correct dose of rescue medications compared only with (4%), (7%),(12%),(15%)and(8%) of them

regarding the above mentioned items respectively pre the intervention which reflect the impact of the intervention on their efficiency level.

Table 3. Mothers' self efficiency pre /post intervention

Self efficiency items	Very sure				T Test	P
	Pre		Post			
	No	%	No	%		
Know manifestation before seizure.	3	4	72	99	40.99	.001
Can manage seizure effectively	5	7	70	96	35.24	.002
Know when contact emergency.	9	12	73	100	34.37	.000
Protect child from harm during seizure.	11	15	73	100	40.99	.003
Give correctly rescue medications	6	8	71	97	33.99	.000

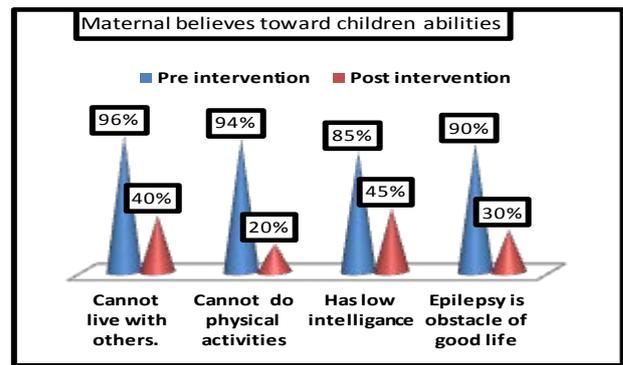


Figure 1. Maternal believes to children abilities pre /post

Regarding maternal believes in Figure 1; about their epileptic children abilities the majority of them before simulation based intervention believe that; their children cannot live with others (96%), cannot do physical activities (94%), has low intelligence abilities (85%) and epilepsy is an obstacle of their children to live a good life (90%) compared post intervention only with 40%, 20%, 45% and 30% for the above mentioned items respectively.

Table 4. Maternal seizure management practices pre / post.

Items of practice	Pre		Post		T	P
	No	%	No	%		
A). Before a seizure:-						
• Maintain Safety.	25	34	73	100	8.37	.000
• Determine trigger.	20	27	64	88	3.76	.000
• Use padded side rails.	18	25	63	86	10.45	.000
• Assess bowel habits.	6	8	59	81	13.82	.000
B). During Seizures						
• Adequate ventilation.	40	55	73	100	6.04	.000
• Loosen clothing.	43	59	73	100	8.14	.000
• Postural support	32	44	69	95	8.24	.000
• Protect the tongue.	36	49	68	93	9.09	.000
• Maintain side-lying	34	47	73	100	6.39	.000
• Protect child	45	62	72	98	4.70	.000
• Avoid restrain	31	42.0	70	96	9.61	.000
C). After Seizure:						
• Record Seizure..	6	8.0	48	66	8.0	.000
• Reassure child /sleep.	52	71.0	73	100	2.04	.000

Regarding Table 4 there was significant difference in maternal seizure management practice pre and post intervention; where all mothers maintain safety before

seizures occur, ensure adequate ventilation during seizure, reassure child and help child to sleep post seizure attack compared only with 34%, 55% and 71% of them pre the intervention for the above mentioned items respectively.

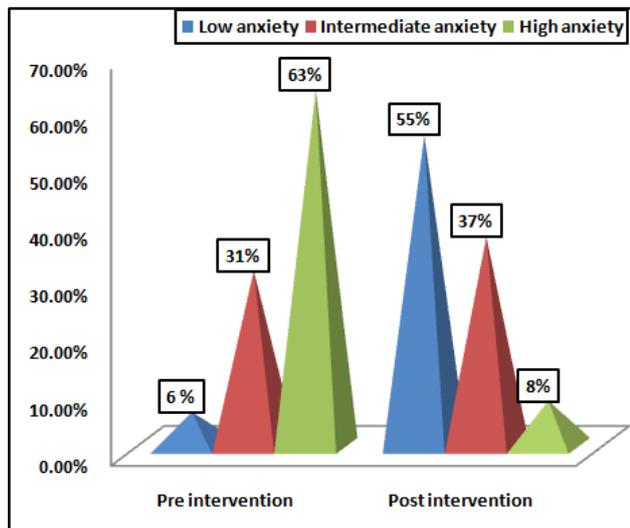


Figure 2. Maternal Anxiety level pre and post intervention

Regarding anxiety level about two thirds of mothers suffer from high level of anxiety pre intervention (63%) compared with only 8% post one month from intervention which reflect impact of intervention in improving maternal anxiety as clear from figure two.

4. Discussion

Epilepsy impacts the quality of life of children which indirectly affect quality of life of care providers for those children especially mothers whom were the first care givers in the family. Regarding studied subjects 'knowledge pre and post one month of seizure care simulation intervention in Table 2; it was improved significant due to impact of the intervention this finding corresponding with Al-Zubaidi, et al., in 2017 [6] whom found most Saudi parents had poor knowledge regarding epilepsy cause, the nature of epilepsy and the majority of them had negative attitudes toward the ability of epileptic children to had normal life. Subjects' level of practice was inadequate among most of parents as most of them did not know how to deal with epileptic children with seizures and most of them would avoid dealing with epileptic children. Most Saudi parents had poor knowledge which resulted in poor attitude and practice misconceptions for child intervention. The adequate education about epilepsy would improve management also Long et al., in 2000 [29] and Shore et al., in 2010 mentioned [30]; the caregivers of children with epilepsy have lack of knowledge about epilepsy and educational programs were efficient in improving knowledge for epileptic children families with significant finding post the intervention was found.

Regarding Table 3 nearly all mothers post one month from the intervention very sure that they can know if their child had seizure before it happen, can manage seizure effectively, know when contact emergency department, can protect child from harm during seizure attack, and also very sure they can able to give correct dose of rescue

medications which reflect high level of perceived efficiency among mothers due to impact of seizure care simulation intervention so the first research question was answered positively. The current finding supported by Sigalet et. al., in 2014 [31] whom found caregivers receiving the supplemental simulation-based curriculum achieved significantly higher levels of competence and reported confidence, supporting a positive relationship between simulation-based seizure discharge education, and caregiver competence and confidence in managing seizures. They added simulation sessions provided insight into caregiver knowledge, insight into the caregiver's ability to apply knowledge under stressful conditions.

Gholami, et. al in 2016; [32] concluded; supportive educational program can increase in maternal awareness about how to care, causes for recurrence, and measures taken in emergency stages of epilepsy through gradual strengthening of the sense of self-reliance and problem-solving abilities to promote mothers' self-efficacy.

Regarding Mc Donald, et. al., in 2014 [33] found a simulation based program which used for supporting caregivers for seizure has positively improve family functioning and well-being also Murphy, et. al., in 2014 [34] found simulation gives caregivers an opportunity to practice and managing in stressful events and subjects' seizures emergency actions were improved significantly post the simulation program and Dunst & Dempsey, 2007 [26] suggest a relationship between simulation program for caregiver to improve family functioning in caring for children with special needs. Studies suggest that caregivers have the abilities to improve their competence with health problems patients suffered with epilepsy. Consistent with the above results shields, et. al., in 2012 [35] found using simulation to improve caregiver competence and self confidence for seizure management produce a higher level of demonstrated competence in families managing seizures in their children also Mc Gaghie, et. al., 2011 [36] and Barsuk, et. al., 2009 [37] mentioned there is evidence to support simulation education program compared with traditional approaches, the higher performance scores.

Regarding maternal believes about their epileptic children abilities; the majority of them before simulation based intervention believe that; their children cannot live with others cannot do physical activities, has low intelligence abilities and believes that epilepsy is an obstacle of their children to live a good life this believes were changed post one month from intervention as clear from figure one so the second research question was answered positively. Henok & Lamaro, in 2017 [38] found some parents believe that; epileptic patient should register in a special school, they always exposed to attacks, and that epilepsy is contagious. Studied subjects' epilepsy misconception were improved significantly post the intervention also Alaqeel and Sabbagh in 2013 [39] reported that 14.6% of the participants in a study conducted in Riyadh considered herbal therapy as a part of epilepsy treatment.

From table four there was significant difference in maternal seizure management practice pre and post one month from intervention so the third research question was positively answered this finding agree with Murphy, et al., in 2006 [25] reported Simulation helps caregivers to

practice and managing stressful events also Alsobky, in 2011 [40] show a significant improvement in mothers' knowledge and practice regarding caring for their epileptic children and found slightly improvement in children's quality of life after program regarding Hagemanna, et al., in 2016 [41] indicate that imparting knowledge and the interactive approach help parents in coping with their child's epilepsy and reduce epilepsy-related fears. Parents benefit from receiving ongoing anticipatory guidance that improve their knowledge, promotes best health outcomes for the child and promote highest family quality of life also Reed, in 2013 [42] reported; parents' capacity to provide care for their child is dependent on good communication and the ability to get information, access, and collaborate with physicians, nurses, and administrative personnel to achieve the best care possible. Partnering with the health care team and its ability to know the patient and their family's wants, needs, desires, and expectations is critical to formulation of a strong partnership is needed to provide care, guidance, and education during treatment course.

Dogahe, et. al., in 2018 [43] agree with the above mentioned finding where they indicated the design and implementation of an educational program based on the predictive beliefs, culture and mothers' education was effective in preventing febrile convulsion also Hazaveyee Shamsi, in 2013 [44]; observe that the mean score of education level in the intervention group was significantly higher than the control group due to impact of the intervention and Sajjadi & Mohsen in 2013 [45] reported a similar increase in the average score of mothers' level of education after the intervention. The average score education increased from 34.4 to 68.3 which has been statistically significant which reflect the impact of the intervention. Regarding Austin, Kakacek & Carr, in 2010 [46]; mentioned several studies have evaluated the efficacy of educational programs developed to improve level of knowledge of families had epileptic patient and results support that educational sessions significantly improve level of knowledge also Dunst & Dempsey, 2007 [26] suggest a relationship between simulation program for caregiver which improve family functioning in caring for children with special needs and caregivers have the abilities to improve their competence with managing epilepsy health problems post the intervention. Agree with the above mentioned results Harris, et. al., in 2010 [47] found caregivers need opportunities to achieve the behaviors after simulation program to elevate level of competence with knowledge, skill or attitude.

Studied subjects' level of anxiety was improved significantly post one month from seizure care simulation intervention as clear from Figure 2. This finding Agree with Reed, in 2013 [42] mention providing knowledge to mothers of epileptic child increase mothers' comfort level and increase ability to meet her epileptic child needs and Lewis, et. al., in 1991 [48] mentioned with regard to anxiety, post intervention experimental group parents in experimental group were more likely than parents in the control group to state that they less anxious and their anxiety level was decrease post the intervention with significant difference was found also Dogahe, et. al., in 2018 [43] agree with the current finding they reported; there is a positive effect of the educational model on the

performance of care to ill child and behavior of mothers which improved significantly post the intervention which help promote the health of the children and maternal anxiety level was improved significantly post the intervention.

5. Conclusion

Mothering epileptic child is a stressful event for all family members especially mothers the first care provider and stressful family member so seizure care simulation intervention improve maternal knowledge and care practice of the ill child which on the others hand improve maternal self efficiency level and decrease their anxiety and stress about prognosis of the disease, child health and all aspects of the child' life which reflected on child health and maternal wellbeing.

6. Limitation

The only limitation was small sample size only 73 mothers whom agree to participate in the study.

7. Recommendations

Diagnosis of epilepsy is stressful event for all family members which need all community institution support through:

1. Well prepared educational intervention which provides support to ill child and his family in all life aspects and disease management process.
2. Maintain suitable health institution in all community areas which epileptic children and their mothers can contact in emergency situation to provide safe life intervention and satisfy all their suspected needs.
3. All family members should maintain a therapeutic psychological and physical environment to epileptic children which help children to explore the world , master the developmental tasks of childhood and satisfy all recommendations for all aspects of child growth and development.

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References

- [1] Carl, S., (2006). Epilepsy; A review of selected clinical syndromes and advances in basic science. *Journal of Cerebral Blood Flow & Metabolism*; 26: 983-1004.
- [2] Gidal, E., & Garnett, W., (2005). *Epilepsy In: Dipiro T, Talbert L, Yee C, Matzke R, Wells G, Posey M, eds. Pharmacotherapy: a*

- pathophysiologic approach. USA: McGraw-Hill Companies Inc, 6th ed. 2005: 1023-46.
- [3] Al Rajeh, S., Awada, A., Bademosi, O., and Ogunniyi, A., (2001). The prevalence of epilepsy and other seizure disorders in an Arab population: a community-based study, *Seizure*, 10: 410-414.
 - [4] Almutairi, A., Ansari, T., Sami, W., and Baz, S., (2016). Public knowledge and attitudes toward epilepsy in Majmaah. *J. Neurosci. Rural Pract.*, 7: 499-503.
 - [5] Shehata, G., (2016). A Review of Epilepsy Stigma in Egypt, *Acta Psychopathol.* 2016, 2:13.
 - [6] Al-Zubaidi, M., Alsudairy, N., Alzubaidi, B., Joharji, R., Al Qurashi, S., Alsadi, K., Abulela, A., (2017). Assessment of Knowledge and Attitude and Practice of Parents towards Epilepsy among Children in Jeddah City, *The Egyptian Journal of Hospital Medicine*, Vol. 69 (6), Page 2685-2689.
 - [7] Guerrini, R., (2006). Epilepsy in children. *Lancet*, 367(9509), (06)68: 182-8.
 - [8] The National Society for Epilepsy. (2009). What is epilepsy?: <http://www.epilepsynse.org/kk/about/epilepsy/what-is-epilepsy>.
 - [9] McNamara, O., (2001). Drugs effective in the therapy of the epilepsies. In: Hardman G, Limbird E, Goodman A, 10th ed. Goodman and Gilman's the pharmacological basis of therapeutics, New York: McGraw-Hill Companies Inc, 521-48.
 - [10] Stafstrom, C., & Carmant, (2015). Seizures and Epilepsy: An Overview for Neuroscientists, *Cold Spring Harb Perspect Med*; 5(6): a 022426.
 - [11] Reynolds, H., (2000). WHO Global Campaign against Epilepsy: bringing epilepsy 'out of the shadows', *Epilepsy and Behavior*, vol. 1, no. 4, pp. S3-S8.
 - [12] Dell, J., Wheless, W., and Cloyd, J., (2007). The personal and financial impact of repetitive or prolonged seizures on the patient and family, *Journal of Child Neurology*, vol. 22, no. 5, supplement: 61S-70S.
 - [13] Rodenburg, R., Stams, J., Meijer, M., Aldenkamp, P., & Deković M., (2005). Psychopathology in children with epilepsy: a meta-analysis. *Journal of pediatric psychology*, 30(6), 453-68.
 - [14] McDermott S., Mani S., & Krishnaswami S., (2009). A population based analysis of specific behavior problems associated with childhood seizures. *Journal of Epilepsy*, 8, 110-8.
 - [15] Shinnar, S., & Pellock, M., (2002). Update on the epidemiology and prognosis of pediatric epilepsy. *Journal of Child Neurology*, 17(1): S4-S17.
 - [16] Litt, B., (2001). Engineering Devices to Treat Epilepsy: A Clinical Perspective, 23rd Annual International Conference of the IEEE Engineering in Medicine and Biology Society, volume 4: 4124-4128.
 - [17] Sung, C., Muller, R., Ditchman, N., Phillips, B., Chan, F., (2013). Positive Coping, Self- efficiency, and Self-Esteem as Mediators Between Seizure Severity and Life Satisfaction in Epilepsy. *Rehabil Res Policy Educ.*; 27(3): 154-70.
 - [18] Wagner, L., Smith, G., Ferguson, P., (2012). Self-efficiency for seizure management and youth depressive symptoms: caregiver and youth perspectives. *Seizure*. 21(5): 334-9.
 - [19] Mohamed, M., Hassan, M., & Mohamed, M., (2018). Effect of Epilepsy on The Quality of Life of Children and Their Family Caregivers, *IOSR Journal of Nursing and Health Science (IOSR-JNHS)* e-ISSN: 2320-1959.p- ISSN: 2320-1940 Volume 7, Issue 5 Ver. V. (Sep.-Oct. 2018): 55-63.
 - [20] Ferro, A., Speechley, N., (2009). Depressive symptoms among mothers of children with epilepsy: a review of prevalence, associated factors, and impact on children. *Epilepsia*; 50: 2344-54.
 - [21] Kessler, C., Chiu, T., Demler, O., et. al., (2005). Prevalence, severity, and comorbidity of 12 month DSM-IV disorders in the National Comorbidity Survey Replication. *Arch Gen Psychiatry* 2; 62: 617-27.
 - [22] McLean, P., Asnaani, A., Litz, T., (2011). Gender differences in anxiety disorders: prevalence, course of illness, comorbidity and burden of illness. *J Psychiatr*, A systematic review, official journal of the international league against epilepsy, Volume 57, Issue4: 529-537.
 - [23] Malakooti, M., McBride, M., Mobley, B., Joshua, L. Goldstein, J., Adler, M., McGaghie, W., (2015). Mastery of Status Epilepticus; Management via Simulation-Based Learning for Pediatrics Residents, *Journal of Graduate Medical Education*: 181-186.
 - [24] McDonald C, Haberman D, Brown N. Self-efficacy: Empowering parents of children with cystic fibrosis. *J Cyst Fibros.* 2013; 12: 538-43.
 - [25] Murphy, N., Christian, B., Caplin, D., et al., (2006). The health of caregivers for children with disabilities: Caregivers perspectives. *Child Care Health Dev.*; 33: 180-7.
 - [26] Dunst, C., & Dempsey, I., (2007). Family-professional partnerships and parenting competence, confidence, and enjoyment, *Int J Disabil*, 54: 305-18.
 - [27] Taylor, J. (1953). "A personality scale of manifest anxiety". *The Journal of Abnormal and Social Psychology*, 48(2), 285-290.
 - [28] Connor, P., Lorr, M., & Stafford, W., (1956). Some patterns of manifest anxiety, *Journal of Clinical Psychology*, 12(2), 160-163.
 - [29] Long, L., Reeves, L., Moore, L., Roach, J., & Pickering, T., (2000). An assessment of epilepsy patients' knowledge of their disorder, *Epilepsia*, 41, 727-731.
 - [30] Shore, C., Buelow, J., Austin, J., & Johnson, C., (2010). Continuing Psychosocial Care Needs in Children with New-Onset Epilepsy and Their Parents, *J Neurosci Nurs., J Neurosci Nurs.*, 41(5): 244-250.
 - [31] Sigalet, E., Cheng, A., Donnon, T., Koot, D., Chatfield, J., Robinson T., Catena, H., Grant, V., (2014). A simulation-based intervention teaching seizure management to caregivers: A randomized controlled pilot study, *Paediatr Child Health.*; 19(7): 373-8.
 - [32] Gholami, S., Reyhani, T., Beiraghi, M., Vashani, H., (2016). Effect of a Supportive Educational Program on Self-Efficacy of Mothers with Epileptic Children, *Article 5, Volume 6, Issue 2.*: 49-56.
 - [33] Mc Donald, C., Haberman, D., & Brown, N., (2014). Self-efficacy: Empowering parents of children with cystic fibrosis., *J Cyst Fibros.*, 12: 538-43.
 - [34] Murphy, N., Christian, B., Caplin, D., et al., (2014). The health of caregivers for children with disabilities: Caregivers perspectives, *Child Care Health Dev.* 2014; 33: 180-187.
 - [35] Shields, L., Zhou, H., & Pratt, J., (2012). Family-centered care for hospitalized children aged 0-12 years, *Cochrane Database of Systematic Reviews*. 2012; (10): CD004811.
 - [36] Mc Gaghie, W., Issenberg, B., & Cohen, E., (2011). Does simulation-based medical education with deliberate practice yield better results than traditional clinical education? A meta-analytic comparative review of the evidence. *Acad Med*, 86: 706-11.
 - [37] Barsuk, J., Cohen, E., Feinglass, J., et al., (2009). Use of simulation-based education to reduce catheter-related bloodstream infections. *Arch Intern Med*. 2009; 169: 1420-1423.
 - [38] Henok, A., & Lamaro, T., (2017). Knowledge about and attitude towards epilepsy among menit community, *Southwest Ethiopia. Ethiop J Health Sci*; 27: 47-58.
 - [39] Alaqeel A, Sabbagh A. Epilepsy: what do Saudi's living in Riyadh know? *Seizure* 2013; 22: 205e209.
 - [40] Alsobky, F., (2011). Effect of Educational Intervention on Improvement of Quality of Life for Children with Epilepsy, *Student School Health Insurance in Benha*.
 - [41] Hagemanna, A., Pfäfflin, M., Fridtjof, N., & Theodor, M., (2016). The efficacy of an educational program for parents of children with epilepsy: Results of a controlled multicenter evaluation study, *Epilepsy & Behavior*, Volume 64, Part A, November, 143-151.
 - [42] Reed, M., (2013). Parental Caregivers' Description of Caring for Children with Intractable Epilepsy, *PARENTAL CAREGIVERS' DESCRIPTION OF CARING FOR CHILDREN WITH INTRACTABLE EPILEPSY*, Doctor of Philosophy, Persistent link: <http://hdl.handle.net/2345/3153>, Boston College University Libraries
 - [43] Dogahe, S., Pasha, A., Chehrzad, M., & Roshan, Z. (2018). The effect of education based on the Health Belief Model in mothers about behaviors that prevent febrile seizure in children, *international journal of biomedicine and public health*, Article 5, Volume 1, Issue 1: 23-29.
 - [44] Hazaveyee MS, Shamsi M. The effect of education based on Health Belief Model (HBM) in mothers about behavior of prevention from febrile convulsion in children. *Scientific Journal of Hamadan Nursing & Midwifery Faculty*. 2013; 21(2): 37-47.
 - [45] Sajjadi, M., & Mohsen, S., (2013). The Effect of Education Based on Health Belief Model (HBM) in Mothers about Behavior of Prevention from Febrile Convulsion in Children, in *World Journal of Medical Sciences* 9(1): 30-35.
 - [46] Austin, K., Kakacek, R., Carr, D., (2010). Impact of training program on school nurses' confidence level in managing and

supporting students with epilepsy and seizures. *The Journal of School Nursing*. 26(6): 420-230.

- [47] Harris, P., Snell, L., Talbot, M, et al., (2010). Competency-based medical education: Implications for undergraduate programs. *Med Teach*. 2010; 32: 646-650.
- [48] Lewis, M., Hatton, C., Salas, I, Barbara Leake, B., Nelly Chiofalo, N., (1991). Impact of the Children's Epilepsy Program on Parents, Volume, 32, Issue 3, Pages 365-374.



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