

Parental knowledge and associated factors on first aid for seizures in children attending a selected tertiary care hospital in Colombo district

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Abstract

Background: Even though seizures are the most common neurological emergency among children, inadequate knowledge regarding first aid practices can be seen broadly amongst the public of Sri Lanka. Good practice of first aid minimizes the probability of any harm befalling the child and therefore it is essential to use effective methods to improve the parental knowledge on the first aid for seizures.

Objective: To describe the parental knowledge on the first aid for seizures and associated factors of parents with children experiencing seizures attending selected tertiary care hospitals in Colombo District, Sri Lanka.

Methods and materials: This was a descriptive cross-sectional study conducted among parents with children who experienced seizures attending a selected tertiary care hospital in the Colombo District, Sri Lanka. Data was collected through an interviewer administered questionnaire

Results: Majority of the respondents had an above average knowledge regarding identifying a seizure from signs and symptoms (75.4%). This was significantly affected only by the age of the parent.

Majority of the respondents (98.4%) had good knowledge on first aid in the event of a seizure.

The gender of the parent was found to be significantly associated with the knowledge on first aid. Majority of parents (90.8%) who were confident enough to perform first aid on their child in an episode of a seizure, had a good knowledge about the first aid.

Majority of parents were aware of the importance of the essential hospitalization but only 34.9% had sufficient knowledge on the duration of seizure above which hospitalization is advised.

Conclusions: Most of the participants had good knowledge on signs and symptoms and on first aid for seizures, but the knowledge on first aid was better than on the signs and symptoms.

The knowledge on signs and symptoms was significantly associated with the age, in which majority of the participants who had good knowledge were 35 years or above. The knowledge on the first aid for seizures was significantly associated with the gender, where females were the majority. The other sociodemographic factors were not significantly associated to the knowledge.

Acknowledgement: The department of community medicine, Faculty of medical sciences, University of Sri Jayewardenepura.

Introduction

A seizure is a paroxysmal abnormality of motor, sensory, autonomic, and/or cognitive function, due to transient brain dysfunction (1). Seizures are not only one of the most common neurological disorders affecting people worldwide but also the most common neurological emergency among children. Seizures are broadly classified into epileptic and non-epileptic seizures, with epileptic seizures characterized by their recurrent nature and unprovoked origin (2). Though most of the epileptic seizures are idiopathic with a significant genetic predisposition, they can also be caused by cerebral dysgenesis, vascular occlusions, tumors and some congenital infections. Conversely, non-epileptic seizures are caused by various factors such as fever, hypoxia, mineral imbalances, hypoglycemia and trauma to name a few. Apart from this classification, seizures can also be classified as general and partial according to which part and to which extent the brain is affected.

According to Centre for Disease Control, about 0.6% of children aged 0-17 years in USA have active epilepsy. Febrile seizures are the most common form of childhood seizures. Apart from these, seizures in children are also caused by childhood epilepsy syndrome which includes a spectrum of disorders ranging from benign to life threatening. Seizures in children can either be convulsive where there are stiff, jerky or trembling movements or non-convulsive with motor arrest which is characterized by unresponsive stare or drop attacks.

The latter is lesser known among the general public and is considered to be more difficult to be identified as a seizure by most people. Both types of seizures can show early signs and symptoms such as loss of consciousness or awareness, staring spells, rolling of the eyes, urinary incontinence and other psychological symptoms such as fear, anxiety and hallucinations.

During an episode of seizure, performing the correct first aid not only comforts and relieves the affected child promptly, but it also minimizes the probability of injuries or any other form of harm befalling the child. During an episode of seizure, the child can either be in an altered state of consciousness or unconscious.

Immediately after identifying a seizure, the child should be moved away from harm. It is advised to keep the child in a left recumbent position on the floor or on bed to keep the airway unobstructed and to reduce the risk of aspiration of mucus and gastric refluxes. Any secretions from the mouth are advised to be wiped off using a cloth however removing these secretions in the mouth by sucking or any other method at home is strongly discouraged as it might further worsen the child's condition. There shouldn't be any restrictions to movements and at the same time the child should not be forcefully moved by vigorous shaking.

Even though both children and adults seem vulnerable during a seizure, since children undergo physical, mental, emotional and social developments, improper care during and after seizures can result in mental retardation and various behavioural problems including learning disorders (3). Thus, appropriate first aid measures should be understood and practiced by all individuals involved in childcare, especially parents who are considered primary caregivers.

Some studies carried out worldwide demonstrate inadequate knowledge on first aid for seizures among parents and teachers. Various misconceptions regarding first aid practices are common amongst the general public including parents. Malpractices not only cause discomfort and stress to the child but also impose severe injuries to him/her. Inadequate knowledge on seizures and their first aid procedures can lead to unnecessary fear and anxiety in parents which in turn may lead to various malpractices and delay in hospitalization.

A few studies carried out in Sri Lanka have also highlighted several misconceptions among parents. In addition, they also revealed that the level of knowledge improved with first aid awareness programs while the fear and anxious responses declined. However, since the number of studies is not sufficient, the factors associated to the parental knowledge on first aid for seizures is not explored in depth with the exception of educational levels. Our study aims to minimize the knowledge gap in this aspect and emphasise the importance of first aid

education among parents, using the knowledge on first aid for seizures as a foundation.

Methodology

A descriptive cross-sectional study was carried out from April 2022 to July 2022 in Colombo South Teaching Hospital, Kalubowila. The total sample constituted of 200 participants. Among them, 195 participants gave consent to participate in the study.

The study instrument was an interviewer administered questionnaire consisting of mostly close ended questions. It was originally presented as a google form in English and interpreted in either English, Sinhala or Tamil by the interviewer, thus ensuring a wider social reach. The responses regarding the questions on the knowledge on the signs and symptoms of seizures and the knowledge on first aid for seizures were given scores as follows:

Correct answer- 2

Don't know- 1

Incorrect answer- 0

The total score was calculated out of 100

Ethical clearance was obtained from the Ethics Review Committee of the Faculty of Medical Sciences, University of Sri Jaywardenepura and of Colombo South Teaching Hospital.

Results

3.1 Socio demographic factors

Out of the 195 participants, 76.4% (149) were females. 45.6% (89) were between the ages of 30 and 39 years while only 1% (2) were below 20 years of age. The mean age of the population was 36 years. More than half of the participants (58.5%, 114) had passed the O/L examination and only 1 parent (0.5%) was a doctorate holder.

3.2 Other selected factors

Among the participants, 74.2% (n=144) had no previous exposure to seizures in a close family member and 91.8% (n=179) had received no previous training on first aid on seizures. In addition to that 68.7% (n=134) of parents had children who have experienced seizures before. Further 79% (n=154) of parents spent more than 4 hours with their child on weekdays and weekends.

3.3 Parental knowledge on signs and symptoms on seizures

Many participants had excellent and good knowledge regarding identifying a seizure from signs and symptoms (n=147, 75.4%) whereas only eighteen respondents (n=18, 9.2%) had poor knowledge levels on identifying a seizure from signs and symptoms. Majority of the participants correctly identified stiff muscles (89%, 174) and jerking movements (84.6%, 164) as signs of a seizure but only 63 (32.3%) had identified aura as a sign.

Table 1: Associations between selected Socio-demographic distributions and parental knowledge on identifying the signs and symptoms of a seizure.

Gender							
<i>Male</i>	12	32.4	34	21.5	46	23.6	X ² = 1.981 df= 1 p value= 0.159
<i>Female</i>	25	67.6	124	78.5	149	76.4	
Age of the parent (in years)							
<i><35 years</i>	11	29.7	77	48.7	88	45.1	X ² = 4.373 df= 1 p value= 0.037
<i>>=35 years</i>	26	70.3	81	51.3	107	54.9	
Highest level of education							
<i>Up to A/L</i>	35	100	135	91.8	170	93.4	X ² = 3.059 df= 1 p value= 0.080
<i>Beyond A/L</i>	0	0	12	8.2	12	6.6	
Followed any course related to Health science.							
<i>Yes</i>	12	32.4	34	21.5	149	76.4	X ² = 1.981 df= 1 p value= 0.159
<i>No</i>	25	67.6	124	76.4	46	23.6	
Marital Status*							
<i>Married</i>	35	94.6	152	96.2	187	95.9	Fisher's p value= 0.648
<i>Others</i>	2	5.4	6	3.8	8	4.1	
Religion							
<i>Buddhism</i>	27	73	127	80.4	154	79	X ² =0.990 df= 1 p value=0.320
<i>Others`</i>	10	27	31	19.6	41	21	
Average monthly income (in LKR)							
<i><50, 000</i>	27	73	95	60.1	122	62.6	X ² = 2.112 df= 1 p value= 0.146
<i>>= 50, 000</i>	10	27	63	39.9	73	37.4	
Previous episode of seizures in the child							
<i>Yes</i>	29	78.4	105	66.5	134	68.7	X ² = 1.982 df= 1 p value= 0.159
<i>No</i>	8	21.6	53	33.5	61	31.3	

Previous exposure to seizures in close family members

<i>Yes</i>	11	29.7	39	24.7	50	25.6	X ² = 0.4 df= 1 p value= 0.527
<i>No</i>	26	70.3	119	75.3	144	73.8	

Average time spent with the child on a weekday

<i><4 hours</i>	10	27	31	19.6	41	21	X ² = 0.990 df= 1 p value= 0.320
<i>>=4 hours</i>	27	73	127	80.4	154	79	

Average time spent with the child on a weekend

<i><4 hours</i>	6	16.2	12	7.6	18	9.2	X ² = 2.659 df= 1 p value= 0.103
<i>>= 4 hours</i>	31	83.8	146	92.4	177	90.8	

The association between selected factors and the parental knowledge on signs and symptoms of seizures are shown in table 1. A statistically significant relationship was observed between the age of the parent and the parental knowledge on signs and symptoms of seizures. Apart from this no significance was seen between the other sociodemographic factors and the knowledge on signs and symptoms of seizures.

3.4 Parental knowledge on the first aid for seizures
Out of the participants 41% (n=80) had an excellent

knowledge on first aid in the event of a seizure and none had poor knowledge. 49.7%(n=97) demonstrated good knowledge while 9.2% (n=18) exhibited an average knowledge in first aid.

Furthermore, out of all the respondents, no one had shown especially poor level of knowledge with regards to first aid in the event of a seizure. When asked about what position they would carry their child to the hospital, 74.7%(n=145) of parents said that they would carry their child in a left lateral recumbent position.

Table 2: Association between selected factors and the parental knowledge on first aid for seizures

<i>Gender</i>							
<i>Male</i>	11	61.1	35	19.8	46	19.8	X ² = 15.489 df= 1 p value= 0.000
<i>Female</i>	7	38.9	142	80.2	149	80.2	
<i>Age of the parent (in years)</i>							
<i><35 years</i>	0	0	88	45.8	88	45.1	X ² = 2.506 df= 1 p value= 0.113
<i>>=35 years</i>	3	100	104	54.2	107	54.9	

Highest level of education							
Up to A/L	16	94.1	154	93.3	170	93.4	Fisher's p value=
Beyond A/L	1	5.9	12	6.7	12	6.6	1.000
Followed any course related to Health science.							
Yes	12	32.4	34	21.5	149	76.4	X ² = 1.981
No	25	67.6	124	76.4	46	23.6	df= 1 p value= 0.159
Marital Status							
Married	16	88.9	171	96.6	187	95.9	Fisher's p value=
Others	2	11.1	6	3.4	8	4.1	0.162
Religion							
Buddhism	16	88.9	138	78	154	79	Fisher's p value=
Others`	2	11.1	39	22	41	21	0.461
Average monthly income (in LKR)							
<50, 000	10	55.6	112	63.3	122	62.6	X ² = 0.416
>= 50, 000	8	44.4	65	36.7	73	37.4	df= 1 p value= 0.519
Previous episode of seizures in the child							
Yes	13	72.2	121	68.4	134	68.7	X ² = 0.113
No	5	27.8	56	31.6	61	31.3	df= 1 p value= 0.736
Previous exposure to seizures in close family members							
Yes	5	27.8	45	25.4	50	25.6	X ² = 0.047
No	13	72.2	132	74.6	144	73.8	df= 1 p value= 0.827
Average time spent with the child on a weekday.							
<4 hours	5	27.8	36	20.3	41	21	X ² = 0.990
>=4 hours	13	72.2	141	79.7	154	79	df= 1 p value= 0.320
Average time spent with the child on a weekend.							
<4 hours	2	11.1	16	9	18	9.2	Fisher's p value=
>= 4 hours	16	88.9	161	91	177	90.8	0.675

The associations between selected factors and the parental knowledge on first aid for seizures are shown in table 2. A significant association was found between the genders of the parents and their knowledge on first aid for seizures. Other factors did not show a statistically significant association with the parental knowledge first for seizures.

Discussion

A large proportion of the participants in our study had excellent and good knowledge regarding identification of a seizure from signs and symptoms (147, 75.4%), which was contradictory to the findings by Kanemura et al. which concluded that the general level of knowledge regarding febrile seizures among parents of young children is quite poor and the reaction of parents to the first fit is often severe and persistent.

Kolahi et al. (4) assessed the knowledge, attitudes, and practices among mothers of children with epilepsy in Iran in which 40% of mothers did not consider the regular symptoms as possible events at the onset of seizures. This study only focusses on mothers in Iran due to the contrasts in literacy and educational levels between males and females in Iran, demonstrating a selection bias in pre-existing literature. However, in our study 76 interviewees had excellent knowledge regarding identifying a seizure from signs and symptoms and among them 66 (86.8%) were females while 10 (13.2%) were males showcasing the manner we incorporated fathers as well which is a crucial advancement in bridging the aforementioned knowledge gap and selection bias.

Elsakka et al. (5), investigated the knowledge, skills, and attitudes towards children with epilepsy among 534 Egyptian parents including parents of epileptic children in an epileptic ward and parents of non- epileptic children from an outpatient ward. This concluded that both the parents of children with and without epilepsy demonstrated poor knowledge about epilepsy, insufficient knowledge on first aid management of an acute seizure as well as a negative attitude towards children with epilepsy which contradicted to our research findings where 41% had an excellent knowledge on first aid while 49.7% demonstrated good knowledge. Furthermore, out of all the respondents, no one had shown especially poor level of knowledge with regards to first aid in the event of a seizure.

In the current study association of parental knowledge on first aid for seizures was with various factors such as age, gender, educational level, cultural and religious background, family history of seizures, occupation and time spent with children were assessed.

It was found out that age had a statistically significant association with the knowledge on signs and symptoms of seizures while gender has a statistically significant association with the knowledge on the first aid for seizures.

The cross-sectional study carried out by Peiris et al (6) to assess the knowledge regarding seizures among 110 pre-school teachers, using self-administered questionnaires showed that there was a significant correlation between the educational level and the knowledge on seizures ($p=0.039$). In contrast to this, the current study shows that there is no statistically significant correlation between educational level and the knowledge on seizures (Fisher's p value= 1.000). In addition, while 51% of the pre-school teachers in the above-mentioned study had poor knowledge on the first aid care only 18% of the parents in the current study had poor knowledge on first aid care. Since an interviewer-based questionnaire was used in the current study, the disadvantages of inability to clear misunderstandings and low response rates were avoided compared to the previous study among preschool teachers. Interviewer bias was unavoidable but was minimized by interviewer training.

A descriptive cross-sectional study carried out by Alahakoon et al. (7) among advanced level students in Gampaha district showed that students who followed health science for O/L had higher knowledge regarding first aid ($p<0.001$) which contradicted the findings of the current study where no statistically significant association between health science related education and knowledge on first aid for seizures was found ($p=0.660$). This study also showed that gender was not significantly associated as factor affecting the knowledge on first aid which contradicted our result in which a statistically significant association was found between the female gender and good knowledge. However, the previous study showed no significant association between previous training on first aid and knowledge on first aid which was similar to the results of our study.

Recommendations

Since this study was conducted in Colombo District, which consists of a plethora of sociodemographic distributions and where Healthcare is easily accessible, a wide spectrum of answers was identified. Therefore, it can be indisputably generalized to the regions with a similar sociocultural construction. However, a variance could be seen when more rural areas are compared with Colombo district and especially in a nonmedical setting where the medical support might be out of reach in the most crucial time thus, it is advisable to evaluate the knowledge and associated factors of the rural and non-medical subculture on this concept separately.

Age and gender seemed to play a major role throughout the study. Hence to raise the knowledge and the confidence at performing first aid in younger population and male gender it is further recommended to explore the extent of different methods of awareness programs such as posters and leaflet distribution in pediatric and maternal

clinics, social media programs aiming the younger population.

Since most of the parents reported that hospitals as their source of knowledge on seizures, it is recommended to hold awareness programs on the signs and the correct first aid for seizures to both mothers and fathers of all children at the time of childbirth or other pediatric visits in all the hospitals.

Acknowledgements

The authors would like to thank the Community Medicine Department of the Faculty of Medical Sciences, University of Sri Jayewardenepura and all staff of the pediatric ward of Colombo South Teaching Hospital, Kalubowila for their huge support in conducting this research.

Funding

This research is funded by the Community Medicine Department of the Faculty of Medical Sciences, University of Sri Jayewardenepura.

Conflicts of Interest

The authors declare no conflict of interest.

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