

The Relationship between Mothers' Epilepsy-related Knowledge and their Healthcare Practices and Attitudes, Alexandria, Egypt

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Abstract

*Maternal knowledge about childhood epilepsy is an important aspect affecting their healthcare practices and attitudes towards their children. **Objective:** Assess level of mothers' knowledge about childhood epilepsy, to investigate its relation to their healthcare practices and attitudes, and to identify socio-demographic, educational and disease-related factors associated with mothers' knowledge level. **Setting:** The study was carried out in Smouha Health Insurance Child Mental Health Clinic affiliated to the Health Insurance Organization, Alexandria–Egypt. **Subjects:** The subjects of present study comprised of 308 mothers attending the clinic for follow up of their epileptic children. **Tool:** A predesigned questionnaire was used to assess mothers' epilepsy-related knowledge, practices and attitudes. **Results:** The majority of mothers (80.5%) showed unsatisfactory knowledge. Most of them (91.9%) agreed on observing the child all the time for safety; showed good compliance with children's medications for dose (83.4%) and time (72.7%). More than half (54.2%) did not treat their children as normal ones (overprotection/rejection). The higher level of mother's knowledge was associated significantly with disagreement on observing the child all the time ($P= 0.000$), and with medication compliance ($P= 0.034$). Only grand mal seizures predicted higher level of mothers' knowledge ($B= 0.961$, $P= 0.015$). **Conclusion:** Mothers' knowledge about epilepsy was considerably low. Higher knowledge level was associated with positive attitudes and practices. **Recommendations:** Integrating an educational component to healthcare plans of epileptic children is recommended.*

Keywords: Childhood epilepsy; Mothers' knowledge; Attitude; Practice; Egypt.

Introduction

Epilepsy is the most common chronic neurological condition that has received public health professionals' concern in the Eastern Mediterranean Region⁽¹⁾. It was estimated that 40% of people who develop epilepsy annually are children under 15 years old⁽²⁾. The impact of epilepsy is most severe in children and adolescents,⁽¹⁾ who show more emotional and behavioural problems, increased dependence on parents and reduced quality of life^(3,4).

Many parents of epileptic children exhibit negative beliefs, attitudes and

behaviours. Parenting styles or practices include overprotection, permissiveness, rejection, low expectation from their children, treating them as sick and believing that any activity can precipitate a seizure⁽⁵⁾. Some parents believe epilepsy is contagious, which may end up with many children unassisted during attacks^(6,7).

The attitudes and behaviours towards epilepsy are influenced by the degree of knowledge about the condition⁽⁸⁻¹⁰⁾. Poor knowledge, cultural beliefs and stigma were considered a major concern of health professionals providing child epilepsy care, worldwide⁽¹¹⁾. Raising awareness about

epilepsy was associated with improvement in attitudes towards treatment, as well as reducing stigma, social isolation, and misperceptions⁽¹²⁻¹⁵⁾. In an Egyptian study on the quality of care of children with chronic diseases, compliance was achieved when the patient and the family received sufficient information about the disease⁽¹⁶⁾.

Epilepsy is associated with a very high treatment gap in most of the developing countries⁽¹⁾. One of the implementation approaches of the WHO Programme on Reducing the Epilepsy Treatment Gap is raising awareness and educating people with epilepsy, their families, and the public about epilepsy⁽¹⁷⁾. This necessitates learning more about people's current knowledge and attitudes about epilepsy, and accordingly, developing educational messages to reduce knowledge gaps and eradicate misconceptions related to epilepsy^(1,17).

Aim of the Study

The current study aimed to assess level of mothers' knowledge about childhood epilepsy, to investigate its relation to their healthcare practices and attitudes, and to identify socio-demographic, educational and disease-related factors associated with mothers' knowledge level in Alexandria, Egypt.

Research Questions:

1. What is the level of mothers' knowledge about childhood epilepsy?
2. What is the relationship between mother's epilepsy related knowledge and their healthcare practices and attitudes?
3. What are the associated factors affecting mothers' knowledge?

Materials and Method

Materials

Design: A cross-sectional study was utilized in the present study.

Setting: The study was carried out at Smouha Health Insurance Child Mental Health Clinic affiliated to the Health Insurance Organization, Alexandria, Egypt.

Subjects: The study population included mothers attending the clinic for follow up of their epileptic children. Using a caregiver's correct knowledge level of 74%,⁽¹⁸⁾ a power of 80%, $\alpha = 0.05$, and a 5% degree of precision, the minimal required sample size was 296 mothers. Full participants were 308 mothers.

Inclusion criteria included mothers who were the main caregivers for their children, and having only one epileptic child. The response rate was almost 100%.

Tool:

A structured interview using a predesigned questionnaire was developed by the researchers and was used to collect data on:

- I. **Socio-demographic characteristics** of mothers and children, as well as educational and disease-related characteristics.
- II. **Mothers' knowledge about epilepsy using epilepsy-related knowledge questionnaire.** This questionnaire was designed by the researchers and included 23 items measuring mothers' knowledge about epilepsy, tapping its nature, types, causes, and diagnosis (15 items). In addition, eight items were designed to assess mothers' knowledge regarding first aid measures during a seizure (3 items), and alarming signs considered an emergency and necessitate helpseeking (5 items). Each item received three responses: "Yes",

"No", or "do not know". Scores of each item were: "2" for the right answer, "1" for the "do not know" answer, and "0" for the wrong answer. Total score of the questionnaire was calculated by summing the scores of the 23 items, and ranged from 0 to 46. The knowledge level was categorized as: Unsatisfactory knowledge (<50%), moderately satisfactory knowledge (50% -75%), and highly satisfactory knowledge (>75%).

III. Mothers' attitudes and practices towards epilepsy. This part consisted of questions designed by the authors based on previous literature review. The questions assessed mothers' help seeking and compliance practices and their attitudes regarding childhood epilepsy. Six questions were tapping mothers' attitudes. The mothers were asked to either "agree" or "disagree" regarding being overprotective towards the epileptic child (two questions), talking with the child about his/her illness (one question), and considering the child as a normal family member who can carry out some home tasks (one question). One question assessed mother's attitude towards her child (rejection, overprotection, same as siblings), and another one asked if the mother hides the child illness from others (not hiding, hiding from relatives only, school personnel only, friends only, or from everyone). Practice questions included seven items to assess mothers' compliance with anti-epileptic drugs (AEDs), practices regarding seeking knowledge about side effects, observing the child to detect side effects, their response to side effects, and taking precautions to control triggers of seizures in the child. Each practice question received either "yes", "no", or

"sometimes" response, except the question asking about the mother's response to side effects occurrence, which included three options "consulted the physician", "stopped medications", or "no response".

Method

- Permission of the head of the North-West Delta division of the Health Insurance Organization was obtained before starting the study.
- The tool was constructed by the researchers after review of relevant literature and was tested for content validity by juries of five experts in the field of public health from family health department and health education and behavioral sciences department, High Institute of Public Health, Alexandria University.
- The reliability of the questionnaire was tested in a pilot sample of 50 mothers, showing satisfactory internal consistency (Cronbach alpha=0.70).
- A pilot study was carried involving 10% of mothers (n=30) who were not included in the study to test feasibility, clarity and applicability of the tool. Based on the obtained results, the necessary modifications were done.
- Data were collected over duration of five months from the first of August 2014 till the middle of January 2015 through interviewing the studied women individually.

Ethical considerations:

The study was approved by the Ethical Committee at the High Institute of Public Health (HIPH), Alexandria University on the basis of the Declaration of Helsinki. Research objectives were explained to the participants at the beginning of the interview and confidentiality of the

information was assessed. Verbal consent was obtained from all participants.

Statistical Analysis

The Statistical Package for Social Sciences (SPSS, version 16; SPSS Inc, Chicago, USA) was used. Tests of significance included Chi-square (X^2), and Fisher's exact tests. Multivariate analysis was carried out using binary logistic regression analysis to determine predictors of the higher level of mothers' knowledge. The dependent variable was mothers' knowledge level (unsatisfactory, and moderately satisfactory), while the independent variables included all variables that significantly associated with mothers' knowledge level in the univariate analysis and were viewed as a predictor of knowledge rather than an outcome of it. The effect of predictor variables was explained in terms of regression coefficient (B). A *p*-value of 0.05 or less was considered significant.

Results

Results showing demographic and disease related characteristics of mothers and epileptic children:

Mothers' ages ranged from 20-58 years, with a mean of 36.47 ± 7.22 years. The majority of them were married (91.6%) and housewives (82.5%). The highest percentages of mothers (36.7%) were illiterates or could just barely read and write, while only 8.4% were university graduates. More than half of them (53.2%) reported their monthly income as "adequate".

As shown in **table (1)**, the age of epileptic children ranged from 1-17 years, with a mean of 9.32 ± 4.04 years. Boys outnumbered girls (54.5%). The majority of them had two or more siblings (72.4%), and were enrolled in the primary school (74.2%).

Regarding disease-related characteristics, the age of onset ranged from 2 to 180 months, with a mean of 49.90 ± 48.40 months. As collected from medical records, petit mal epilepsy accounted for 41.9%, while grand mal epilepsy represented 19.1%. Presence of triggers before seizures was reported by 69.2% of mothers. The highest percentage of mothers (37%) stated that their children's seizures decreased in frequency in the last three months, while 22.4% of them indicated increase in the frequency. Previous hospital admission was encountered in 23.7% of the children, and positive family history of epilepsy was stated in 21.4% of them (**Table 1**).

Mothers' knowledge, attitudes and, practices:

The majority of mothers (80.5%) had unsatisfactory knowledge, while none of them showed highly satisfactory knowledge (**Figure 1**).

Table (2) depicts mothers' responses on the epilepsy-related knowledge questionnaire. Incorrect response showed the highest percentages for the majority of items. The highest incorrect responses were recorded by 85.7% of mothers who recorded incorrect response on the item stating that "An E.E.G can be used to help diagnose epilepsy", followed by 85.1% of mothers who denied that epilepsy happens due to excess electrical activity in the brain, 82.1% thought that they can give extra doses of anti-epileptic drugs (AEDs) if there is no improvement, and 76.3% viewed epilepsy as an infectious disease. Less than half (46.1%) of them did not know that some seizures may last for seconds and cannot be noticed by others, and 43.5% said that they should restrain the child and try to stop seizures during attacks. The highest rate of correct responses was reported by 75% of mothers who said that there is no problem to give the child two doses of AEDs together on a day if the previous dose was forgotten. Mothers' knowledge on items tapping situations where seizures should be

considered as emergency were correct for most items, and the highest percentages of them were unsure about the two items asking if a seizure should be an emergency if lasted more than five minutes (57.5%), or if the child swallowed water during it (48.7%).

The main sources of mothers' information were physicians and nurses (81.5%); with the highest percentage for the physicians (69.8%). The media was the source of information for 11.4% (8.4% for TV and 3% for internet), while relatives and friends rated as the least source of information (7.1%), (**Figure 2**).

Table (3) presents mothers' attitudes and practices towards epilepsy. The majority (91.9%) agreed that they should observe their children all the time to ensure their safety. More than half of mothers believed that they should not talk with their children about their illness (66.6%), disagreed about letting the child share with chores inside home (54.2%), and declared that they did not treat the child as a normal child (52.3% overprotective and 1.9% rejecting the child). Less than half of mothers (42.9%) believed that they should prevent children from practicing hobbies or sports for safety. Only 1.9% of the mothers declared that they hid their children illness from everyone, while 75.3% of them did not hide it at all.

Regarding mothers' practices, the majority were compliant with their children's AEDs exactly as prescribed by the physician for both dose (83.4%) and time (72.7%), and 86% of them stated that they did not change dose or time without referring to the physician. Mothers who were seeking knowledge about side effects of AEDs represented 31.5%. Among these mothers, the majority of them (80.4%) observed their children frequently for any of the side effects, and 60.3% of them reported occurrence of side effects in their children. For those mothers whose children developed side effects, 76.6% of them responded by consulting the physician, and 12.8% stopped medications. More than half

of the mothers (55.5%) took precautions to control triggers of seizures (**Table 3**).

Table (4a) depicts the relationship between mothers' knowledge level and some socio-demographic, educational and disease-related factors. Although mothers' educational level was associated with higher knowledge level, yet, this association was not statistically significant ($P=0.48$). On the other hand, the higher level of mother's knowledge was associated significantly with being the only child or having only one sibling ($P=0.017$), better child's academic achievement ($P=0.013$), grand mal epilepsy ($P=0.010$), and presence of positive family history ($P=0.012$).

Table (4b) illustrates the relationship between mothers' knowledge level and their attitudes and practices towards epilepsy. Mothers who believed that they shouldn't be overprotective to their children by observing them all the time had higher level of knowledge compared to mothers who agreed on being overprotective (52%, vs. 16.6%, $P=0.000$). Positive attitudes such as considering the child as a normal child, talking with him/her about the disease, assigning some home tasks to the child, and not hiding his/her illness from others were associated with higher levels of mothers' knowledge, however, these associations were not statistically significant ($P>0.05$). Compliance with AEDs revealed significant association with mothers' level of knowledge. Mothers who were compliant with both dose and time of medications had the highest knowledge level followed by mothers who were compliant in one aspect only (dose or time of AEDs) in comparison to mothers who were not compliant at all (22.8%, 16.3% vs. 6.5%, respectively, $P=0.034$).

Table (5) displays summary results of logistic regression analysis of predictors of mothers' knowledge level. Independent variables are displayed in Table 5. Results showed that, only grand mal seizures predicted the higher level of mothers' knowledge by 2.61 times more than petit

mal epilepsy ($B = .961, P = 0.015$). The presence of positive family history of epilepsy showed marginal statistical significance as a predictor of mothers' knowledge ($B = .864, P = 0.052$).

Discussion

Findings of the current study about mothers level of knowledge were similar to those of other studies in the developing countries^(15,19). In Iran (2010),⁽¹⁹⁾ 91.4% of parents of epileptic children reported low or medium knowledge about epilepsy. In a Turkish study (2009),⁽¹⁵⁾ 42% of parents did not know what to do to help their children during a seizure, and 51.5% knew the wrong things to do during seizures. Meanwhile, 23% of parents were unsure or wrong about the fact that absence seizure alone could indicate an attack. Gaps in mothers' knowledge were evident in all areas related to epilepsy. On the contrary, our findings were not in line with the results of McEwan et al,⁽²⁰⁾ who reported a good knowledge level regarding causes and signs of epilepsy, among carers of epilepsy patients in UK. Differences in knowledge level may be due to many factors including the setting of the study; being a developed or developing country, educational level of carers, routine provision of educational services by care providers, different methodological factors, as well as cultural and social factors.

Despite the overall unsatisfactory mothers' knowledge, their knowledge on items tapping situations where seizures should be considered as emergency were correct for most items. The discrepancy between these items and the rest of the questionnaire may be attributed to the nature of these information, where they are related mainly to emergency situations, making them a priority to the physicians rather than other ordinary information, especially in a country like Egypt where Health Insurance physicians are working with a large number of cases giving them no time to mention all needed information.

Overall, mothers' attitudes towards epilepsy as a medical condition were almost negative. These findings were inconsistent with results of other studies,^(15,18,20) which showed more positive attitudes towards epilepsy patients who were viewed as normal family and community members, and they received information about their illness from parents in 80% of cases. Less than half of mothers (42.9%) believed that they should prevent children from practicing hobbies or sports for safety. Similar result was reported by Hirfanoglu et al,⁽¹⁵⁾ where 33.8% of parents indicated that epilepsy meant that a child could not be active in sports.

Although epilepsy has been perceived as a stigmatizing condition in both developed and developing countries,⁽¹⁾ the majority of mothers in this study believed that they should not hide their children illness from others. This positive attitude could be the result of the sample selection, where these mothers were recruited from a medical care-seeking setting which means that, they were the ones who most likely did not hide their children conditions and they believed that they should seek medical advice.

While the overall mothers' knowledge and attitudes were unsatisfactory, their healthcare practices towards epilepsy were satisfactory for most situations. The majority of mothers showed good practices in relation to AEDs administration and precautions to decrease frequency of seizures. This may result because such practices are usually the main concern of the physicians who give clear instructions about them to mothers during the medical visit. On the other hand, only one third of mothers were seeking knowledge about side effects of the AEDs. This is finding may be attributed to mothers themselves, who are mainly concerned about the effect of AEDs on their children cognitive functions and scholastic achievement rather than being the physicians' concern. This explanation is supported by the finding of Lewis et al,⁽²¹⁾

who stated that parents of epileptic children perceived that physicians were not responding to their concerns about the side effects and they focused only on medication management and number of seizures.

Several studies reported that better knowledge about epilepsy is associated with better attitudes and practices^(15,21,22). In the current study, poor maternal knowledge was associated significantly with their overprotective attitude, while mothers' high knowledge level was related significantly with their compliance practices. The relationship between maternal knowledge and other socio-demographic, educational, and disease-related factors were investigated. Some of these factors were considered as outcomes for the knowledge level, while others were considered as predictors of it. Mothers' satisfactory knowledge was associated with the better child's scholastic achievement. Being more knowledgeable will lead to better practices and it is expected that these children consequently will lead a better life including their scholastic performance. Hirfanoglu et al.⁽¹⁵⁾ indicated that parents' good knowledge was associated with fewer seizures, while children's poor knowledge was associated with their poor school performance.

Other factors that showed significant association with better maternal knowledge included being the only child or having only one sibling, grand mal epilepsy, and positive family history. All these factors are viewed as determinants of mothers' knowledge level. It is expected that mothers will seek information if they have only one child or a child with the least number of siblings making this child more valued by the mother. This finding was similar to that reported by Hirfanoglu et al.⁽¹⁵⁾ Also, the severe nature of grand mal epilepsy with its associated convulsions may motivate mothers to seek information more than mothers of children with petit mal epilepsy, that pass unnoticed in most cases. Likewise, having a previous experience in the family

will increase mothers' knowledge and makes them more prepared when receiving their children's diagnoses or provide them with an nearby source of information inside their families.

Strengths and limitations of the study

The interview method that was used in data collection in this research allowed mothers of epileptic children to share their feelings and thoughts towards their children illness, and at the same time it was a good opportunity for the researchers to draw mothers' attention to the importance of gaining correct knowledge about epilepsy and its impact on their children's health and social life. However, the current work has some limitations. First, this research targeted mothers only, while fathers' or other informal carers' knowledge and care aspects were not investigated. Second, conducting this study in a governmental health care facility overlooked the private sector of health care and its attendants who come from different social strata.

Conclusion

Maternal knowledge about childhood epilepsy was substantially low. Higher level of knowledge was associated with good practices and attitudes, indicating the importance of mothers' awareness about the condition. These findings highlight the need to raise mothers' knowledge about their children's illness and its related healthcare aspects through health education programs provided by medical and paramedical healthcare professionals.

Recommendations

These findings highlight the need to raise mothers' knowledge about their children's illness and its related healthcare aspects through health education programs provided by medical and paramedical healthcare professionals.

Table (1): Socio-demographic, educational and disease-related characteristics of epileptic children, Alexandria, Egypt (n=308)

Characteristics of the children	No. (%)
<i>Socio-demographic characteristics</i>	
Age (range)	1-17 years
<i>Mean ± SD</i>	<i>9.32 ± 4.04</i>
Gender	
Boys	168 (54.5)
Girls	140 (45.5)
Family size	
< 4 members	39 (12.7)
4-6 members	240 (77.9)
> 6 members	29 (9.4)
Number of siblings	
None or only one	85 (27.6)
≥ 2	223 (72.4)
<i>Educational characteristics</i>	
School grade (n=264)^a	
Kindergarten	14 (5.3)
Primary	196 (74.2)
Preparatory	41 (15.5)
High	13 (5.0)
Academic achievement (n=250)^b	
Poor	69 (27.6)
Fair	59 (23.6)
Good	70 (28.0)
Excellent	52 (20.8)
Previous school failures (n=250)^b	
No	201 (80.4)
Yes	49 (19.6)
<i>Disease-related characteristics</i>	
Age when seizures first started in months (range)	2-180 months
<i>Mean ± SD</i>	<i>49.90 ± 48.40</i>
Type of seizures	
Grand mal	59 (19.1)
Petit mal	129 (41.9)
Do not know	120 (39.0)
Presence of triggers	
No	213 (69.2)
Yes	95 (30.8)
Frequency of seizures in the last three months	
Increased	69 (22.4)
Decreased	114 (37.0)
Stopped	48 (15.6)
No change	77 (25.0)
Previous hospital admission	
No	235 (76.3)
Yes	73 (23.7)
Family history of epilepsy	
No	242 (78.6)
Yes	66 (21.4)

^a 44 children were not enrolled in kindergarten or school, ^b children enrolled in kindergarten were excluded

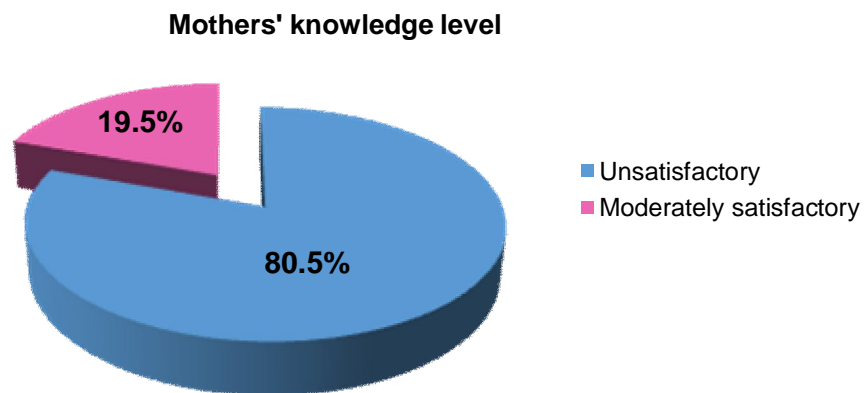


Figure (1): Level of mothers' knowledge according to their total scores on the epilepsy-related knowledge questionnaire

Table (2): Mothers' responses on the epilepsy-related knowledge questionnaire, Alexandria, Egypt (n=308)

Knowledge questionnaire items (answers)	Mothers' responses (n=308)		
	Correct No. (%)	Incorrect No. (%)	"Do not know" No. (%)
Epilepsy is one of the infectious diseases (False)	7 (2.3)	235 (76.3)	66 (21.4)
Epilepsy is a hereditary disease (False)	116 (37.6)	112 (36.4)	80 (26.0)
Epilepsy happens due to abnormal electrical activity in the brain (True)	9 (2.9)	262 (85.1)	37 (12.0)
Head injuries may cause epilepsy (True)	34 (11.0)	184 (59.8)	90 (29.2)
Lack of sleep and stress may trigger some seizures (True)	68 (22.1)	153 (49.7)	87 (28.2)
Fever may cause seizures (True)	34 (11.1)	200 (64.9)	74 (24.0)
Brain tumors are considered as one of the causes of epilepsy (True)	50 (16.2)	104 (33.8)	154 (50.0)
Watching TV for long periods and flashing lights may trigger seizures in some children (True)	61 (19.8)	158 (51.3)	89 (28.9)
An E.E.G can be used to help diagnose epilepsy (True)	1 (0.3)	264 (85.7)	43 (14.0)
All people with epilepsy lose consciousness during seizures (False)	113 (36.7)	96 (31.2)	99 (32.1)
Some seizures may last for a matter of seconds and cannot be noticed by others (True)	65 (21.1)	142 (46.1)	101 (32.8)
All those who start drugs for their epilepsy have to take them for life (False)	81 (26.3)	121 (39.3)	106 (34.4)
If you forget to give your child AEDs for a day, no problem to give the 2 doses together next day (True)	231 (75.0)	20 (6.5)	57 (18.5)
The mother can give extra doses of AEDs if there is no improvement (False)	7 (2.3)	253 (82.1)	48 (15.6)
There is no need to continue taking AEDs if your seizures stop (False)	42 (13.6)	155 (50.3)	111 (36.1)

Table (1): Continued

Knowledge questionnaire items (answers)	Mothers' responses (n=308)		
	Correct No. (%)	Incorrect No. (%)	"Do not know" No. (%)
During seizures, mothers should:			
Restrain the child and try to stop seizures (False)	78 (25.3)	134 (43.5)	96 (31.2)
Lay the child gently on one side (True)	86 (28.0)	119 (38.6)	103 (33.4)
Put a pillow or something soft under the head (True)	122 (39.6)	97 (31.5)	89 (28.9)
Seizures are considered as emergency and the mother should call the ambulance if:			
The seizure lasts more than five minutes (True)	177 (27.6)	46 (14.9)	85 (57.5)
The child swallowed water during the seizure (True)	82 (26.6)	76 (24.7)	150 (48.7)
The child has high fever or diabetes (True)	159 (51.6)	45 (14.6)	104 (32.8)
There is risk of a head or other serious injuries (True)	148 (48.0)	56 (18.2)	104 (33.8)
The child is having trouble breathing after the seizure (True)	148 (48.1)	45 (14.6)	115 (37.3)

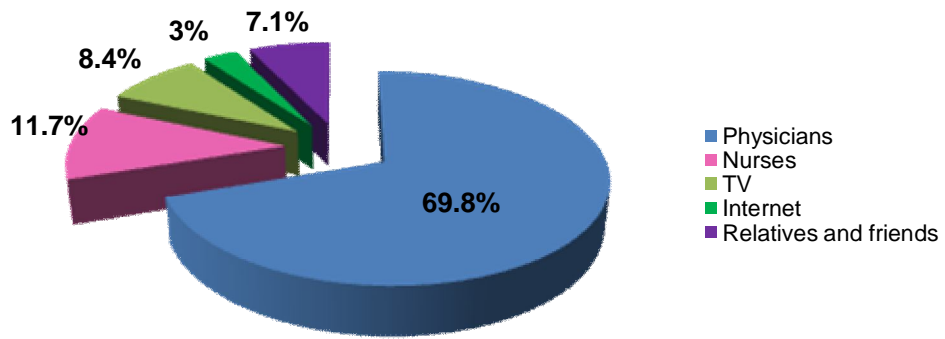


Figure (2): Sources of mothers' information about epilepsy

Table (2): Epilepsy-related attitudes and practices of mothers, Alexandria, Egypt (n=308)

Attitudes and practices	No. (%)
Mothers' attitudes	
The mother should observe the child all the time to ensure his/her safety (overprotective)	
Disagree*	25 (8.1)
Agree	283 (91.9)
The mother should prevent the child from practicing any hobbies or sports for safety (overprotective)	
Disagree*	176 (57.1)
Agree	132 (42.9)
The mother shouldn't talk with her child about his/her illness	
Disagree*	103 (33.4)
Agree	205 (66.6)
The epileptic child can carry out some home tasks as a normal family member	
Agree*	141 (45.8)
Disagree	167 (54.2)
What is your attitude towards your epileptic child?	
I consider him/her as a normal child or the same as his/her siblings*	141 (45.8)
I am overprotective	161 (52.3)
I am rejecting the child	6 (1.9)
Do you hide the illness of your child from others?	
No*	232 (75.3)
Yes, only from relatives	31 (10.1)
Yes, only from school personnel (teachers, colleagues)	28 (9.1)
Yes, only from his/her friends	11 (3.6)
Yes, from everyone	6 (1.9)
Mothers' practices	
The mother is compliant in giving the DOSE of AEDs exactly as prescribed by the physician	
Yes*	257 (83.4)
Sometimes	24 (7.8)
No	27 (8.8)
The mother is compliant in giving the AEDs in TIME exactly prescribed by the physician	
Yes*	224 (72.7)
Sometimes	45 (14.6)
No	39 (12.7)
The mother changed the DOSE or TIME without referring to the physician	
No*	265 (86.0)
Yes	43 (14.0)
The mother was seeking knowledge about the side effects of her child's AEDs	
Yes*	97 (31.5)
No	211 (68.5)
The mother is frequently observing her child for any side effects of AEDs (n= 97)^a	
Yes*	78 (80.4)
No	19 (19.6)
The mother's response to side effects occurrence (n=47)^b	
Consulted the physician*	36 (76.6)
Stopped medications	6 (12.8)
No response	5 (10.6)
The mother takes precautions to control triggers of seizures in her child	
Yes*	143 (46.4)
Sometimes	28 (9.1)

^aThe response is based on "Yes" response in the previous item, ^b the number of cases with side effects, * the best attitude/practice

Table (3a): The relationship between mothers' knowledge level and some socio-demographic, educational and disease-related factors, Alexandria, Egypt (n=308)

Factors	Knowledge level		X ² (p)
	Unsatisfactory (n=248) No. (%)	Satisfactory (n= 60) No. (%)	
Mothers' age			
20-	85 (84.2)	16 (15.8)	2.09 (0.35)
33-	140 (77.8)	40 (22.2)	
46-58	23 (85.2)	4 (14.8)	
Mothers' education			
Illiterates/just barely read and write	94 (83.2)	19 (16.8)	1.46 (0.48)
Basic education	63 (81.8)	14 (18.2)	
Secondary education or higher	91 (77.1)	27 (22.9)	
Mothers' work			
Housewife	200 (78.7)	54 (21.3)	2.92 (0.08)
Working	48 (88.9)	6 (11.1)	
Child's gender			
Boys	140 (83.3)	28 (16.7)	0.172 (0.19)
Girls	108 (77.1)	32 (22.9)	
Child's age when seizures first started (years)			
1-	41 (77.4)	12 (22.6)	0.546 (0.76)
6-	26 (78.8)	7 (21.2)	
11-15	181 (81.5)	41 (18.5)	
Number of siblings			
None or only one	61 (71.8)	24 (28.2)	5.73 (0.017) *
≥ 2	187 (83.9)	36 (16.1)	
Child's academic achievement (n=250)^b			
Poor	63 (91.3)	6 (8.7)	8.70 (0.013) *
Fair	50 (84.7)	9 (15.3)	
Good/Excellent	91 (74.6)	31 (25.4)	
Type of seizures (n= 188)^c			
Grand mal	42 (71.2)	17 (28.8)	6.68 (0.010) **
Petit mal	112 (86.8)	17 (13.2)	
Frequency of seizures (last three months)			
Increased	58 (84.1)	11 (15.9)	5.36 (0.14)
Decreased	95 (83.3)	19 (16.7)	
Stopped	33 (68.8)	15 (31.2)	
No change	62 (80.5)	15 (19.5)	
Family history of epilepsy			
No	202 (83.5)	40 (16.5)	6.27 (0.012) *
Yes	46 (69.7)	20 (30.3)	
Sources of mothers' information			
Health care professionals	206 (82.1)	45 (17.9)	2.10 (0.34)
Media	26 (74.3)	9 (25.7)	
Relatives & friends	16 (72.7)	6 (27.3)	

^b children enrolled in schools starting from primary level, ^c mothers who do not know type of epilepsy were excluded, * p≤0.05, ** p≤0.01, *** p≤0.001

Table (4b): The relationship between mothers' knowledge level and their attitudes and practices towards epilepsy, Alexandria, Egypt (n=308)

Practices and attitudes	Knowledge level		$X^2(p)$
	Unsatisfactory No. (%)	Satisfactory No. (%)	
The mother should observe the child all the time to ensure safety (overprotective) Disagree Agree	12 (48.0) 236 (83.4)	13 (52.0) 47 (16.6)	<i>FET</i> (0.000)**
The mother should prevent the child from practicing any hobbies or sports for safety Disagree Agree	144 (81.8) 104 (78.8)	32 (18.2) 28 (21.2)	0.442 (0.50)
The mother shouldn't talk with her child about his/her illness Agree Disagree	171 (83.4) 77 (74.8)	34 (16.6) 26 (25.2)	3.27 (0.07)
The epileptic child can carry out some home tasks as a normal family member Disagree Agree	141 (84.4) 107 (75.9)	26 (15.6) 34 (24.1)	3.55 (0.059)
The mother's attitude towards her child Exactly the same as his/her siblings Overprotection/Rejection	108 (76.6) 140 (83.8)	33 (23.4) 27 (16.2)	2.55 (0.11)
Hiding the child illness from others No Yes	186 (80.2) 62 (81.6)	46 (19.8) 14 (18.4)	0.072 (0.78)
Compliance with the AEDs Compliance with both dose and time Compliance with either dose or time Not compliant	169 (77.2) 36 (83.7) 43 (93.5)	50 (22.8) 7 (16.3) 3 (6.5)	6.77 (0.034)*
The mother was seeking knowledge about the side effects of her child's AEDs No Yes	169 (80.1) 79 (81.4)	42 (19.9) 18 (18.6)	0.077 (0.78)
Changing the dose or time of AEDs without referring to the physician No Yes	209 (78.9) 39 (90.7)	56 (21.1) 4 (9.3)	3.30 (0.06)
Taking precautions to control triggers of seizures Yes No/Sometimes	116 (81.1) 132 (80.0)	27 (18.9) 33 (20.0)	0.61 (0.80)

* $p \leq 0.05$, ** $p \leq 0.001$

Table (5): Summary results of logistic regression analysis of significant variables related to mothers' knowledge, Alexandria, Egypt

Independent variables	B Coefficient	Standard Error (SE)	P- value	Exp (B)
None or only one sibling	.708	.450	.116	2.030
Family history of epilepsy	.864	.445	.052	2.372
Seizures type (grand mal epilepsy)	.961	.396	.015	2.614*
<i>Constant</i>	-2.265	.331	.000	.104

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