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RESEARCH ARTICLE

Effect of health educational program on knowledge about epilepsy and its management among primary schools' teachers.

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Abstract

Epilepsy is a major health problem frequently seen among school children. Children having seizures may bother their parents and teachers, who do not receive specific training during their education. Moreover, teachers feel desperate not knowing how to handle the situation. Not only the disease itself, but also the drugs used may lead to certain cognitive, psychosocial and behavioral problems. ***The aim*** of this study was to evaluate the effect of health educational program on knowledge regarding epilepsy and its management among primary schools' teachers, in Port Said city. It was ***hypothesized*** that the primary schools' teachers' knowledge will significantly improve after implementation of the educational program. The study was conducted in primary schools in Port Said city on ***sample*** of 143 teachers. Using a quasi-experimental ***research design***. A health teaching program about epilepsy and its treatment was developed by researchers, teachers' general knowledge about epilepsy and its treatment was tested before and after giving the health program using a self-administered questionnaire. The ***Results*** The findings indicated an improvement of the teachers' knowledge about various items of epilepsy and also in its management. There was a strong significant correlation between teachers' knowledge about epilepsy and their level of education and their income. ***In conclusion,*** the health education program to teachers improves their knowledge about epilepsy and its management. In the light of this finding ,it will recommended that , educational programs must be carried out periodically in primary schools for all teachers to provide them with proper knowledge and skills necessary for helping epileptic children .

INTRODUCTION

Epilepsy is a "neurological disorder resulting from a sudden, excessive, disorderly discharge of neurons, in either a structurally normal or a diseased cerebral cortex, It is characterized by the paroxysmal occurrence of short-lived disturbances of consciousness, involuntary convulsion muscle movement, psychic or sensory disturbances or some conditions thereof". [1].

Epilepsy is one of the most frequent chronic disorders of childhood. The term epilepsy derives from the Greek word "Epilamabavian" which means "to take hold of" or "to seize". It is a symptom complex arising from disordered brain function that itself may be secondary to variety of pathologic process. Epilepsy is a common neurological disorder in children and can have a major impact on a child's development1. Epilepsy starts in childhood in 60% of cases and most of the clinically significant aspects of the disease occur during childhood [2].

Most studies have found the point prevalence of epilepsy to lie between 4 to 10/1000 (the lower figure in developed countries, while the higher in developing countries) [3]. In Egypt, the study revealed that life time

prevalence of epilepsy among children is 9/1000 children, with highest peak among neonates and during early infancy (0-2years). The annual incidence rate is 82.7/100, 000 children, again with highest incidence rate during the first two years of life and the least during late childhood (12- < 18 years) [4].

Prevalence of epilepsy was higher among males (10.5/1000) than female children (7.4/1000). Focal epilepsy is the most frequently encountered type (58.7%) [4]. other study intimates that 7.2 / 1000 of school age children in Egypt have epilepsy. Male and female ratio was 2:1. Prevalence was significantly higher among lower socioeconomic class [5].

Epilepsy is a major health problem frequently seen among school children. Children having seizures may bother their parents and teachers, who do not receive specific training during their education. Moreover, teachers feel desperate not knowing how to handle the situation. Not only the disease itself, but also the drugs used may lead to certain cognitive, psychosocial and behavioral problems. The perception of epilepsy in societies may differ depending on the level of education and cultural background of the society. People might associate epilepsy with supernatural causes, contamination and demonic possession [1].

As epilepsy hits the most important formative years of the majority of the patients, education does get hampered, especially when parents are over protective and teachers are either non-supportive or neutral with negative attitude. What is needed is awareness and proper education about different type of seizures, do's and don'ts during an attack to the teachers. Once teachers accept and have empathy for them, peers would automatically accept them. Cordial ambience is bound to stimulate these children to study in sprit of the limitations due to seizures and antiepileptic drugs. They may not be the best but they must be encouraged to be their best [6].

In school, children will spend most of their day away from home and their parent's watchful eyes, and because children cannot be expected to understand their epilepsy treatment fully until late child hood and early adolescence, and because of misinformation or lack of knowledge they may feel scared or awkward about the seizures. So some planning is needed to support them at school.

Knowledge about epilepsy among teaching staff is often poor. Therefore the clinical team is responsible for a child with epilepsy and should ensure that the school has appropriate knowledge of the condition and the teacher know how to help and putting extra support to the epileptic child [7,8].

The role of the teachers in the management and education of parents with an epileptic child and their families is most important. Teachers are highly valued for providing care, advice and support in explaining the social aspects of epilepsy [10, 11].

Therefore, the aim of the present study was to evaluate the effect of health educational program on knowledge regarding epilepsy and its management among primary schools' teachers, in Port Said city. It was hypothesized that the primary schools' teachers' knowledge will significantly improve after implementation of the educational program.

Subjects and Methods

Research design and Setting:

The study was conducted in primary schools in Port Said city using a quasi-experimental research design with pre - post assessment to evaluate the effect of health teaching program. It was conducted at the primary schools, in Port Said city. Twenty schools were selected randomly form two districts (North, South) in Port-Said City ten schools were being selected from each districts.

Subjects:

All teachers in primary schools in Port Said were eligible for inclusion in the study sample. The only inclusion criterion was being fulltime teacher in one of these schools during the time of the study, and willing to participate in the educational program. No exclusion criteria were set. The sample size was calculated to detect any improvement in participant's knowledge and practice from 30% (pre) to 60% (post), at 95% level of confidence, and 80% power. Accordingly, the required sample size was 143 teachers.

Tools of Data Collection:

The researchers designed a self-administered questionnaire form for data collection based on pertinent literature. It comprised three parts: **The first part**: includes teachers' biosocial data as: Age, sex, years of experience, and (not biosocial data). **The second part** includes assessment of teachers' general knowledge about epilepsy as definition, causes, precipitating factors, signs, symptoms and types. **The third part**: asked about the management of epilepsy carried out by teachers. The questionnaire was face and content validated through vigorous review by a panel of experts. Necessary modifications were done based on their recommendations.

The questions were in the form of multiple choices. The correct answers were scored "1" and the incorrect "zero." The scores were summed by area and a total score was computed. A correct knowledge of 60% of more of the questions was considered "satisfactory" or else "unsatisfactory."

Pilot Study:

After the development of the tools, a pilot study was carried out on 10% of the sample to ascertain the clarity and feasibility of the tool, to estimate the exact time needed for filling it up, and to detect any problems that might face the researcher and interfere with data collection. The questionnaire took 25 - 30 minutes to be completed. After conducting the pilot study, minor necessary changes were done mainly in the form of rephrasing some sentences and changing some terms. The tool was then finalized. The pilot sample was not included in the main study sample.

Administrative Considerations:

The required official steps were taken to get the approval for carrying out the study from the local Directorate of Education. Letters of agreement were issued to the headmasters of the selected schools from the Directorate to conduct the study, and asking for cooperation with the researchers. Meetings were held with individual headmasters, where the researchers explained the purpose of the study. The study was conducted through four phases: Pretest phase, program planning, implementation, and evaluation. The fieldwork was carried out from 15th October 2013 to 25th April 2014.

Ethical considerations: The researchers explained the study goal and procedures to each potentially eligible teacher. They informed them of their rights to refuse or withdraw at any time. Confidentiality of the data was ensured and the tools were anonymous.

Study maneuver: The study was conducted through four phases: assessment, program development, implementation, and evaluation. Collection of the data covered a period of one month from 15th October 2013 to 15th April 2014. **Assessment phase:** The researchers recruited the study sample according to the set criteria. Those who consented to participate were given the self-administered questionnaire along with the instructions for filling it up. This was done individually to avoid bias from inter-changing information. The researchers were present all the time to respond to any raised queries. **Program development phase:** The researchers developed an educational program using the baseline information gathered in the assessment phase as well as the reviewed related literature. It was tailored to the identified needs and demands of teachers in simple Arabic language. The program was then tested for validity by a panel of experts that included professors in psychiatric and community nursing professor and nursing education professor, and necessary modifications were done accordingly. An instructional learning booklet was used as a handout to complement the health education sessions. The program included four sections cover all information about the disease and its management. **Implementation phase:** The participating teachers were divided into ten groups of 13-15 each. The teaching program was implemented for each group one session per week for a total of four sessions for each group and 40 sessions for all groups. The duration of the session was about two hours, and it was done according to teacher's available time and place for attendance, which was mostly in the morning. The program was implemented with the principles of adult learning emphasizing active participation, interaction, and critical thinking. Different teaching methods were used such as mini lectures, group discussions, and demonstrations. The teaching media in included pamphlets, wall charts, and real objects prepared and used by the researcher, in addition to the booklet. **Evaluation phase**: The effectiveness of the program was evaluated twice after implementation using the same self-administered tool.

Statistical analysis

Data were fed to the computer and analyzed using IBM SPSS software package version 20.0. Qualitative data were described using number and percent. Quantitative data were described using mean and standard deviation. Comparison between different groups regarding categorical variables was tested using Chi-square test. For normally distributed data, comparison between two independent population were done using independent t-test while more than two population were analyzed F-test (ANOVA) to be used comparison between different periods using ANOVA with repeated measures. Correlations between two quantitative variables were assessed using Pearson coefficient. For ordinal parameters correlations between two variables were assessed using Spearman coefficient. Significance of the obtained results was judged at the 5% level.

Results

The study sample comprised 143 teachers, nearly half of them (48.3%) were in the age group 31-40 years, the majority of them (74.1%)were female **(Table 1).** Slightly more than one third of the study sample (34.3%) had 6-10 total years of experience.

Table 2 showed that there were no statistical significant correlations between teachers knowledge and their management of epilepsy and their socio-demographic characteristics namely age, education ,experience and income in pre, post, and follow up of the program except between their knowledge and education in pre-test and in income in follow up where $p=0.046^{*,}$ and 0.042^{*} respectively, also a statistically significant correlation was found between teachers management and their income in follow up test where $p<0.001^{*}$.

Table 3 revealed that there was an improvement in teachers knowledge and their management regarding epilepsy from pre to where the mean percent change of improvement was 55.46 ± 130.27 and 56.05 ± 135.40, unfortunately this improvement was reduced from post to follow up of the program, where the mean percent change for knowledge was -29.01 ±94.86 and for management was -11.11 ± 84.13.

Table 4 showed that there were statistical significant positive correlations between teachers knowledge and their management of epilepsy in pre-post program where $p<0.001^{*}$, and also in post-follow up of the program where $p<0.001^{*}$

Table (1): Distribution of the studied teachers according to Socio-demographic data (n = 143)

	No.	%
Gender		
Male	37	25.9
Female	106	74.1
Teachers' age in years		
20 – 30	27	18.9
31 – 40	69	48.3
41 – 50	38	26.6
51 – 60	9	6.3
Experience		
Below 5 years	40	28.0
6 – 10 years	49	34.3
11 – 15 years	18	12.6
Above 15 years	36	25.2

Table (2): Correlation between knowledge & management score with demographic data of epilepsy (n = 143)

		Age	Education	Experience
Knowledge				
Pre	$\mathbf{r_s}$	0.076	0.167^{*}	0.061
	p	0.364	0.046^{*}	0.468
Post	$\mathbf{r_s}$	0.070	-0.077	-0.056
	p	0.407	0.360	0.509
Follow up	$\mathbf{r_s}$	-0.058	-0.009	0.021
	p	0.492	0.914	0.807
Management				
Pre	$\mathbf{r_s}$	-0.030	0.044	0.060
	p	0.720	0.598	0.478
Post	$\mathbf{r_s}$	0.057	-0.035	0.048
	p	0.496	0.676	0.570
Follow up	$\mathbf{r_s}$	-0.103	0.020	-0.137
	p	0.223	0.816	0.104

$\mathbf{r_s}$: Spearman coefficient *****: Statistically significant at $p \leq 0.05$

Table (3): Percent of change of knowledge and management

Mean of percent of change	Improvement for pre to post	Reduction from Post to follow up
Knowledge	55.46 ± 130.27	-29.01 ±94.86
Management	56.05 ± 135.40	-11.11 ± 84.13

Table (4): Correlation between percent of change of knowledge and management

	Knowledge	
	rs	p
Management		
Improvement pre .post	0.438*	<0.001*
Reduction Post .follow up	0.303*	<0.001*

r_s: Spearman coefficient *: Statistically significant at $p \leq 0.05$

Discussion

Epilepsy is a common neurological disorder in children and can have a major impact on a child's development1. Epilepsy starts in childhood in 60% of cases and most of the clinically significant aspects of the disease occur during childhood [2].

In the present study, an educational program on epilepsy directed to a sample of primary school teachers in Port Said city with the hypotheses that the primary schools' teachers' knowledge and their practices in management of epilepsy will significantly improve after implementation of the program, By using a quasi-experimental "before-and-after" design to tests to the effects of an intervention program on the knowledge and practices used by teachers to manage epileptic seizures. The educational program included audiovisual material other teaching methods on the basic aspects of epilepsy. After implementation of the program and immediately retesting knowledge and practices about epilepsy, they appeared significantly improved in all explored domains (definition, classification, underlying factors, clinical features, prevention, management and general aspects) and practices in the management of hypothetical seizures were also significantly improved. These findings were lead to acceptance hypotheses that the primary schools' teachers' knowledge will significantly improve after implementation of the teaching program.

In this context, ***Swaiman et al., 2012*** [14] reported that , teachers should be correctly informed about epilepsy and encouraged to have open minded and positive and optimistic attitude towards the condition. The school teachers and the class mates should be instructed about the emergency treatment of a child having a major seizure in the classroom. Other children may be quite helpful if they are armed with the correct information regarding the benign nature of the seizure. They should be motivated to offer help and carry the messages of epileptic care to their family and friends.

The positive effects of our intervention programs on the knowledge and management of epilepsy among primary school children is supported by other study carried among school primary school teachers in Italy which found the educational program on epilepsy directed to 582 Italian primary school teachers has been successful in improving knowledge toward the disease and, most importantly, in reducing the number of persons unaware of the burden of disease and its impact on daily life [15].

Unfortunately the improvements on the knowledge and management of epilepsy among primary school children in the next three months (follow up test) were reduced, this might be due to the long period between the implementation of the program and follow up test, where this might be normal because people tend to forget some of what they learn as long as time passed. So this indicates to carry out a periodic program about the disease at least every six months to guarantee that the teacher's knowledge and practices are good deal with such children.

The present study showed that there was positive correlation between years of teaching and teachers knowledge but this only in pretest, this result is in agreement with Iranian study in 2012, where it proved that female teachers and who had higher years of teaching, knew symptoms of epilepsy better than other teachers. [16]

Finding of the present study indicated that there were no correlation between teachers' knowledge and their age, education, experience in post and follow up of the program, this finding is in the same line with ***Sharma et al., (2013)*** [7] who reported that age, gender, experience, income, source of information and improvement in knowledge scores about epilepsy had no significant association.

The present study also indicated that no correlation had been found between teachers management of epilepsy and their age, education & years of experience, our finding is contradicted by ***Maryam & Parviz (2013)***[17] who found a correlation between misconception about epilepsy management and higher level of education and teaching experience. They added that this finding may be reflected to several reasons, containing attained from unreliable resources, and poor educative programs about epilepsy. They also reported that, the unfamiliarity with management can be a source of a serious problem for children with epilepsy when seizure fit occurred in schools. Teachers' knowledge about epilepsy as reported in our study is correlated to their management of the disease; ***Mecarelli et al., (2015)*** [15] confirms the efficacy of an ad hoc educational program on the basic knowledge of epilepsy and the management of an epileptic seizure among primary school teachers. However, this intervention did not contribute to decrease negative attitudes, Our finding is in disagreement with ***Karimi1& Heidari (2015)*** [18],who reported that ,despite of there was overall good knowledge of epilepsy and positive attitudes toward epilepsy among school's teachers, the majority of teachers were not familiarized with the initial procedures management of seizure attack. Our result is also contradict with ***Chung et al., (2010)*** [19], ***Alkhamra et al., (2012)*** [20] ***Mustapha and Akande (2013)*** [21], and ***Abulhamail et al., (2014)*** [22].

In the present study, after implementation of the health teaching program, significant improvements in teachers' knowledge about epilepsy and its management were noticed in all areas. This result of the present study is supported by ***Rajan (2007)*** [13] found the majority of the respondents improved their knowledge about epilepsy.

The most prominent improvement was in the score of female, group age 31- 40 years. This is similar to the study conducted by ***Zielinska et al., (2005)*** [12] on knowledge regarding epilepsy, majority of primary school teachers were female in the age group of 30-40 years and the findings of the study indicated the improvement of teachers" knowledge related to management of epilepsy. Theses improvement were statistically significant through the post test and follow up phase.

Conclusion and Recommendation

The present study concluded that teachers' knowledge and management about epilepsy were greatly improved immediately after implementation of health educational program about the disease. Unfortunately this improvement is decline in the next three months (follow up test) but still good, Therefore, the researchers recommended that educational programs about epilepsy should be provided periodically and continually to all teachers to equip them with the necessary knowledge and skills for proper management of the epileptic children in the school .

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