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Evaluation of knowledge about epilepsy and attitudes towards patients with epilepsy among university students in Upper Egypt

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ABSTRACT

Purpose: Epilepsy is a major public health problem worldwide. There are many misconceptions about people's knowledge and attitudes about epilepsy, which influence people's behavior towards patients with epilepsy.
Methods: We conducted a cross-sectional study in Sohag University, a public Egyptian University, in Upper Egypt. We used an Arabic language designed questionnaire to assess people's knowledge about epilepsy and their attitudes towards patients with epilepsy. We included a total of 920 students in the study.
Results: 12.4% of study respondents had never heard of or read about epilepsy. Moreover, there was much misunderstanding about the etiology of epilepsy, as 68.2% of epileptic and 74.5% of nonepileptic respondents believe epilepsy is caused by evil spirits and evil eyes or due to psychiatric disorders. There were also many people who held negative attitudes towards patients with epilepsy in regards to major life milestones such as marriage and having children. Among nonepileptics, 54.5% believe epileptics should not marry and 49.9% believe they should not have children. Among patients with epilepsy, these percentages are 27.3% and 36.4% respectively.
Conclusions: Knowledge about epilepsy is insufficient and should be increased. The attitudes towards patients with epilepsy are negative and should be changed in Upper Egypt.

1. Introduction

Epilepsy is a common neurological disorder as it affects approximately 1% of population worldwide, especially in developing countries, including Egypt (El-Tallawy et al., 2013; Falavigna et al., 2007; Sander and Shorvon, 1996). The lack of accurate knowledge about epilepsy leads to misconceptions that result in notions that patients with epilepsy suffer from mental illnesses or cognitive disorders which may cause them to lose employment and encounter difficulties finding a life partner (Chung et al., 1995; Young et al., 2002).

A number of studies have reported that the level of knowledge and the attitudes regarding epilepsy vary from one community to another and is dependent on educational level (El-Tallawy et al., 2013; Falavigna et al., 2007; Fonseca et al., 2004; Hills and MacKenzie, 2002; Jensen and Dam, 1992; Kobau and Price, 2003; Njamnshi et al., 2009; Pandian et al., 2006; Shehata and Mahran, 2011). Knowledge about epilepsy is not wide-spread in developed countries (Kobau and Price, 2003) and in developing countries this knowledge gap appears to be even worse. Many studies described a lack of awareness and unavailable information about epilepsy as a disease, as well as negative attitudes towards the patients with epilepsy themselves. A lack of knowledge about the causes, incidence and even the acute management of epileptic emergencies, makes the situation much more serious in those countries (Ndoye et al., 2005; Njamnshi et al., 2009; Radhakrishnan et al., 2000; Shehata and Mahran, 2011; Youssef et al., 2009).

It was reported in the literature that educated individuals have more knowledge about epilepsy and a more informed attitude towards patients with epilepsy. University students represent the highest level of basic education in our community and they have the potential to assume a role model status in the community (Chung et al., 1995; Hills and MacKenzie, 2002; Iivanainen et al., 1980; Jensen and Dam, 1992; Mirnics et al., 2001; Pandian et al., 2006; Santos et al., 1998; Wong and Chung, 2003). Therefore, taking the above-mentioned factors into consideration, we have chosen university students to be the study group in our research.

Despite advances in the diagnosis, classification and management of epilepsy worldwide, little is known about the knowledge and attitudes regarding epilepsy among highly educated people in Upper Egypt due to a lack of studies. Accordingly, the objective of our study is to assess

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the level of knowledge about epilepsy and the attitudes towards patients with epilepsy using a representative sample of students of Sohag University, one of the public universities in the heart of Upper Egypt.

2. Materials and methods

The study protocol was approved by the ethical committee of Sohag University, Egypt, and the necessary permissions to conduct the study were received from the higher authorities of the University. Interviews with university students were conducted to clarify the objective of our study and inform them on how to comply with the study questionnaire. Oral consent was given by the university students who agreed to participate in the study.

2.1. Study design and location

A cross-sectional study was conducted using the students of one of our public universities in Upper Egypt. "Sohag University." Sohag is a city in Egypt that lies on the west bank of the Nile. It is situated in the heart of Upper Egypt approximately 471 kilometers south of Cairo.

2.2. Study participants

We included 920 university students from various faculties including the faculties of science, arts, commerce, agriculture, and engineering. We excluded the faculty of medicine because medical students would be unsuitable for a questionnaire about a medical disease. However, while medical students are supposed to have sufficient knowledge about epilepsy, it was found that general knowledge about epilepsy among senior medical students was low (Souza et al., 2018). Accordingly, we are planning a separate study that will include medical students from multiple universities. We sampled the students using a systematic random sampling method. Senior students from each faculty were included in the sampling and each faculty was visited on a separate date. A thirteen-item Arabic language questionnaire was used in the study. It was a self-administered questionnaire to prevent participants from being influenced by the attitudes of the researchers or being provided hints by the person administering the questionnaires (Al-Rashed et al., 2009). Most of the items on the questionnaire were quoted from a validated questionnaire used previously (Shehata and Mahran, 2011; Young et al., 2002). More questions were added to our questionnaire in order to study our community's beliefs regarding epilepsy. The questionnaire was explained to the students with the help of the participating authors and two well-trained psychologists. Students were instructed not to discuss the items on the questionnaire with their colleagues or any others, apart from members of the research team. The study participants were classified into two groups; nonepileptic students (n = 898) and epileptic students (n = 22) who were diagnosed on the basis of detailed medical histories, EEGs, imaging results and an assessment by a senior neurologist.

2.3. Study questionnaire

A standardized Arabic language questionnaire was used and its items were adopted from previously published studies that addressed the same research questions (Ab Rahman, 2005; Al-Rashed et al., 2009; Shehata and Mahran, 2011). The study questionnaire was divided into 3 parts: socio-demographic data, knowledge about epilepsy, and attitudes and practice data. The socio-economic section included data about age, sex, grade, and faculty of each student. This was followed by a preliminary, general question about the disease: have you ever heard about or read about epilepsy? The next section addressed two important questions about the study participant's knowledge of epilepsy including questions about the etiology and the methods for diagnosing epilepsy. The last section included eight questions about the attitudes and practices held about patients with epilepsy, which the study participant answered with a yes, no, or I do not know. The study questionnaire is presented in Appendix A.

2.4. Statistical analysis

All data were presented as the mean ± SD for numerical data and percentages for categorical data. Student T-tests and Chi-square tests were used for statistical analyses. SPSS version 16 was used for statistical calculations. A P-value was considered significant if it was < 0.05.

3. Results

3.1. Demographic data of the sample students

We analyzed a total of 920 (87.6%) questionnaires out of 1050 questionnaires distributed among students (2.6% of all university students excluding medical students). Students who had not heard or read about epilepsy before (130 students, 12.4%) had their questionnaires discarded. The age of the study participants was normally distributed. Twenty-two (2.4%) of them were patients with epilepsy and 898 (97.6%) were nonepileptics with mean ages of 22.68 ± 1.55 and 22.54 ± 1.63, respectively. Twelve (54.5%) of the patients with epilepsy were males and 10 (45.5%) of them were females. In the nonepileptic group, 434 (48.3%) were males and 464 (51.7%) were females. There were no statistically significant differences between the epileptic and nonepileptic groups regarding age and sex ($p = .677$ and $p = .564$, respectively).

3.2. Knowledge about epilepsy

Table 1 describes the state of knowledge about epilepsy among the study sample. It was found that the epileptic group knew more about the various methods used for diagnosing epilepsy including diagnosis by a neurologist, and use of EEG and brain imaging methods. These results were statistically significant ($p = .013$, $p < 0.001$ and $p < 0.001$, respectively) as shown in Table 1. However, 62.5% of the nonepileptic group did not know anything about the methods of diagnosing epilepsy when compared to the epileptic patients($p < 0.001$). Regarding the etiology of the disease, there was a great deal of misunderstanding, even in the epileptic group. A total of 68.2% of patients with epilepsy related the disease to evil spirits, envy, depression or anxiety. The same situation was observed in the nonepileptic group, as 74.5% of them reported the same factors as causal for the disease (Table 1).

Table 1
Knowledge about epilepsy.

Question		Epileptic	Non epileptic	Chi square	P value
1.How can epilepsy be diagnosed?	By specialist	4(18.2%)	50(5.6%)	6.184	**0.013**
	By EEG	5(22.7%)	16(1.8%)	42.237	< **0.001**
	By CT Brain	3(13.6%)	8(0.9%)	29.529	< **0.001**
	All of the above	8(36.4%)	263(29.3%)	0.517	0.472
	I do not know	2(9.1%)	561(62.5%)	25.768	< **0.001**
2.Do you think that the cause of epilepsy is	Hereditary	3(13.6%)	15(1.7%)	16.029	< **0.001**
	Evil spirits	3(13.6%)	521(58%)	17.253	< **0.001**
	Evil eyes	8(36.4%)	78(8.7%)	19.412	< **0.001**
	Depression and anxiety	4(18.2%)	70(7.8%)	3.132	0.077
	Fever	0	13(1.4%)	0.323	0.570
	Medication	4(18.2%)	171(19%)	0.010	0.920
	I do not know	0	30(3.3%)	0.760	0.383

Table 2
Attitudes and practices toward patients with epilepsy.

Question		Epileptic	Non epileptic	Chi square	P value
Attitude					
1.Do you think that epileptic patients should not marry?	Yes	16(72.7%)	182(20.3%)	35.969	< **0.001**
	No	6(27.3%)	489(54.5%)		
	I do not know	0	227(25.3%)		
2.Do you think that epileptic patients should not have children?	Yes	10(45.5%)	187(20.8%)	7.789	**0.020**
	No	8(36.4%)	448(49.9%)		
	I do not know	4(18.2%)	263(29.3%)		
3.Do you think that epileptic patients can think like any normal person?	Yes	9(40.9%)	431(48%)	3.274	0.195
	No	11(50%)	295(32.9%)		
	I do not know	2(9.1%)	172(19.2%)		
4.Do you think that epileptic patients can drive a car?	Yes	9(40.9%)	152(16.9%)	8.839	**0.012**
	No	9(40.9%)	572(63.7%)		
	I do not know	4(18.2%)	174(19.4%)		
Practice					
1-Would you personally be willing to marry an epileptic patient?	Yes	15(68.2%)	120(13.4%)	53.271	< **0.001**
	No	3(13.6%)	600(66.8%)		
	I do not know	4(18.2%)	178(19.8%)		
2-Would you personally be willing to make friends with an epileptic patient?	Yes	10(45.5%)	447(49.8%)	0.372	0.830
	No	7(31.8%)	291(32.4%)		
	I do not know	5(22.7%)	160(17.8%)		
3-Would you personally be willing to work with an epileptic patient?	Yes	11(50%)	413(46%)	4.139	0.126
	No	4(18.2%)	322(35.9%)		
	I do not know	7(31.8%)	163(18.1%)		
4-Would you personally be willing to have a picnic with an epileptic patient?	Yes	11(50%)	397(44.2%)	0.452	0.798
	No	8(36.4%)	334(37.2%)		
	I do not know	3(13.6%)	167(18.6%)		

3.3. Attitudes and practices toward patients with epilepsy

There were statistically significant differences between the epileptic and nonepileptic groups regarding the concept of marriage ($p < 0.001$), the willingness to marry an epileptic ($p < 0.001$), and the possibility of patients with epilepsy having children ($p = .02$). These social concepts extended to include other activities such as driving a car ($p = .012$). Approximately 54.5% of nonepileptics believe patients with epilepsy should not marry, while 25.3% of them did not know if an epileptic should marry or not. Moreover, 66.8% of them did not accept the idea of marriage with an epileptic partner, and 49.9% of them felt that patients with epilepsy should not have children. In regards to other social activities such as driving a car, 63.7% of the nonepileptic group thought that patients with epilepsy should not drive a car. There were also negative attitudes regarding the ability of patients with epilepsy to think and engage in other social activities such as forming and maintaining friendships, working, or having a picnic. These negative attitudes were present in both the epileptic and nonepileptic groups. The data regarding attitudes towards patients with epilepsy are presented in Table 2.

4. Discussion

We found many disconcerting issues regarding knowledge about epilepsy as a disease and the attitudes towards patients with epilepsy from this study in our community in Upper Egypt. First, a sizeable ratio of highly educated persons had either not heard about epilepsy as a disease, or linked the disease to social rather than health-related phenomena. In the group of epileptic students, there was also a misunderstanding about the etiology, methods of diagnosis, and nature of the disease. Moreover, there was a strongly negative attitude towards patients with epilepsy regarding major life milestones such as marriage and having children. This study may add important baseline knowledge for decision makers to set needed educational strategies for our community to increase knowledge and improve attitudes towards patients with epilepsy.

In developed countries such as Italy, it was found that 96% of university students had heard about epilepsy compared to 87.6% in our study and 86.5% in a Malaysian study (Ab Rahman, 2005; Mecarelli et al., 2007). However, even in developed countries, knowledge about the etiology of epilepsy is still misunderstood. About 45%, of university student participants in Italy (Mecarelli et al., 2007) believed epilepsy was a psychiatric disease, 14% thought it could be contagious, and 25% believed it might result from stress. In Malaysia, the situation is similar, as approximately 39.7% believed epilepsy was a psychiatric rather than neurological illness. However only 5.3% believed it was related to evil spirits (Ab Rahman, 2005). In Kuwait, 42.1% of study participants thought epilepsy was related to psychiatric illnesses such as depression and anxiety. This was much lower in our study as only 7.8% reported a relationship between epilepsy and psychiatric illness (Al-Rashed et al., 2009). However, a major problem is that a sizeable ratio of highly educated persons in developing countries think epilepsy is related to evil spirits and the evil eye. In Saudi Arabia, 24.6% of school teachers believe epilepsy is caused by evil spirits, and 22% believe it is caused by evil eyes (Abulhamail et al., 2014). The situation in Kuwait is similar as 24.6% of university students think it is caused by evil spirits and 34.1% of them think that it is caused by evil eyes. In our study, the situation is even worse in comparison as more than 60% of the nonepileptic study participants thought epilepsy was related to evil spirits and evil eyes. Moreover, numerous studies have found that the level of knowledge about epilepsy is inadequate and that attitudes towards patients with epilepsy are negative, even among students studying in health-related fields. This is especially true for junior students when compared to their senior counterparts (Fonseca et al., 2004; Hassona et al., 2014; Souza et al., 2018; Tedrus et al., 2007). Interestingly, the results of those studies were similar to the results of our study, even though heath science majors were sampled. This suggests that knowledge about epilepsy and the attitudes towards patients with epilepsy are generally deficient and negative.

By analyzing attitudes towards patients with epilepsy, we found strongly negative opinions in most of the studies, including those conducted in developed and developing communities. In our study, we found negative attitudes towards patients with epilepsy in both the epileptic and nonepileptic groups regarding the concept of marriage, the willingness to marry an epileptic, and the possibility of patients with epilepsy having children. Similar findings occur in developed

countries, e.g., in the Italian study mentioned above, where only 9% of the study participants thought patients with epilepsy can marry and have children. In contrast to this study, in Kuwait, 8% of participants thought that patients with epilepsy should not marry and 12.1% of them felt that those patients should not have children. In this study, 55.9% of the participants refused to accept the idea of marriage with an epileptic partner. This same situation applies to the other social activities such as practicing sports, working, having a picnic and driving cars (Ab Rahman, 2005; Al-Rashed et al., 2009).

A limitation of our study is that our data comes from a small group of university students in a specific geographical location in Egypt. Accordingly, the data from this study cannot be generalized to all of Egypt. More studies are needed from other parts of the country. Another limitation is the inclusion of higher education students, which may not represent the wider community, especially rural communities. However we included this group as a trial in order to analyze the most optimistic picture about the disease, and the data from this study can be compared to other studies that include persons with lower levels of education in rural areas in Egypt.

5. Conclusion

In conclusion, we found that a lack of knowledge and negative attitudes occur in both epileptic and nonepileptic groups. This means that even patients with the disease, as well as healthy individuals, are not supplied with necessary information about the nature of epilepsy (Shehata and Mahran, 2011). From the abovementioned facts, we can conclude that, although epilepsy is a worldwide and common neurological disorder, knowledge about the disease is lacking and highly misunderstood, and the attitudes towards patients with epilepsy is strongly negative.

Knowledge about epilepsy should be raised and the attitudes towards patients with epilepsy should be changed. This can be achieved through well-directed educational programs using seminars, school and university health educational programs, and mass media including radio and television in both developed and developing countries. Having accurate knowledge is very important to manage patients with epilepsy and decrease disease-related comorbidities. A positive attitude towards these patients is also important for reducing the social stigma surrounding this disease and to help reduce disease related psychiatric comorbidities.

Conflicts of interest

None of the authors have any conflict of interest to disclose.

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Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at https://doi.org/10.1016/j.eplepsyres.2018.05.003.

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