Knowledge about epilepsy in university health students: A multicenter study

Priscila Souza [a,b], Leslie A. Portes [a], Robert K. Thomas [c], Jorge R. Bonito [d,e], Marilia Rua [f,g], Fabio J. Pacheco [h], Phillip Plaatjes [i], Natalia C. Oliveira [a,*]

[a] Adventist University of São Paulo, Sao Paulo, SP, Brazil
[b] Physical Medicine and Rehabilitation Institute, Lucy Montoro Center, University of Sao Paulo, Sao Paulo, SP, Brazil
[c] Department of Science and Exercise at LaSierra University, California, United States
[d] Evora University, Evora, Portugal
[e] Portuguese Society of Education Science, Portugal
[f] Health College at Aveiro University, Aveiro, Portugal
[g] Family Health Nursing, Aveiro University, Aveiro, Portugal
[h] Del Plata Adventist University, Libertador San Martin, Argentina
[i] Faculty of Arts at Helderberg College, Somerset West, South Africa

ARTICLE INFO

ABSTRACT

Even with economic development and improvements in health care around the world, it is estimated that nowadays, 50 million people have epilepsy. It is one of the most prevalent neurological diseases, yet it is still surrounded by prejudice, stigma, lack of awareness, and wrong attitudes of the population towards the disease. The aim of this study was to evaluate and compare the knowledge about epilepsy in health students from different countries: Brazil, Argentina, Portugal, United States, and South Africa. Students were asked to complete a survey regarding knowledge about epilepsy (the Epilepsy Knowledge Questionnaire). One hundred and two students participated, 62.2% of them were female. Portuguese students had significantly higher values than the American ones (p = 0.025). Regarding the medical aspects, on average, students hit 63.8% of the questions, and the students from Portugal had significantly higher average than the ones from the United States (p = 0.0007). Statements with lower percent of correct answers were about pathophysiology, medication, and treatment of the disease. There were no differences between the scores obtained by the students of each country in the social aspects of the disease. Statements with higher percent of mistakes were about sports practice, labor, proceedings in case of convulsion, and ability to drive vehicles. General knowledge of senior health students about epilepsy was considered low, however, regarding the medical aspects of the disease, students from Brazil and Portugal exhibited a slightly superior knowledge. Changing the way of seeing and treating people with epilepsy brings, as a consequence, increased opportunities for these people in different sectors of society.

© 2017 Elsevier Inc. All rights reserved.

1. Introduction

Epilepsy is a common neurologic disorder [1]. Estimates of the World Health Organization are that between 4 and 10 in every 1000 persons worldwide have epilepsy, and the prevalence of the disease is higher in developing countries [2]. Despite the economic and health advances, it is estimated that around 50 million persons currently have the disease [2,3].

Although epilepsy is one of the most prevalent neurologic disorders, it is still surrounded by prejudice, stigmas, misconception, and erroneous attitudes from people towards the disease [1,3–9].

Several authors have observed that a great deal of the discrimination is motivated by the false idea of helplessness, frailty, and mental disability attached to people with epilepsy, besides the fear of witnessing and dealing with the symptoms of the disease [1,4,7–10]. The lack of awareness about epilepsy is considered to be a determinant of social rejection towards persons with epilepsy [3,10].

Some studies have been conducted to identify knowledge, behavior, and beliefs of people towards epilepsy [1,4–12], and some others have evaluated future health professionals [1,5,8–10,12]. University students represent a portion of society with high level of knowledge and good potential to become role models for society, contributing to the development of their countries [10]. It is crucial, then, that they have awareness, knowledge, and appropriate attitudes towards the individual with epilepsy, as the professionals to be are important vectors of information [1].

Health professionals lack knowledge on many neurological diseases [13]. A recent study with this public [14] showed that nonmedical

* Corresponding author at: Estrada de Itapecerica, 5859, Sao Paulo, SP 05858-001, Brazil.
E-mail addresses: leslie.portes@ucb.org.br (L.A. Portes), rthomas@lasierra.edu (R.K. Thomas), jbonito@uevora.pt (J.R. Bonito), mrua@ua.pt (M. Rua), cienciaytecnica@uap.edu.ar (F.J. Pacheco), plaatp@hbc.ac.za (P. Plaatjes), natalia.silva@ucb.org.br (N.C. Oliveira).

professionals (sports and exercise science professionals, nutritionists, and physiotherapists) had lower knowledge than doctors, nurses, and psychologists, however, having access to previous information on epilepsy resulted in increased awareness.

Studies aiming at improving knowledge have already been conducted [1,4,5], but no study so far has compared it among university students from different cultures. Thus, the aim of this study was to evaluate and compare medical and social knowledge about epilepsy among senior university health students from different countries (Brazil, United States of America, Portugal, Argentina, and South Africa).

2. Material and methods

It was a multicenter exploratory transversal study, with a quantitative approach. All senior students of the health undergraduation courses of each center were invited to participate in the research, as shown in Fig. 1.

Students who did not respond to all items of the instrument were excluded from the sample. The instrument employed in this research was the Epilepsy Knowledge Questionnaire (EKQ), developed by Jarvie et al. [15]. Its psychometric properties have already been assessed [15,16], and it has been used by other researchers [4,6]. Jarvie et al. [15] verified Cronbach's alpha values of 0.49 (in the domain medical aspects of epilepsy) and 0.62 (in the domain social aspects of epilepsy), with intraclass correlation coefficient of 0.67 and 0.87, respectively.

Out of the 55 items of the EKQ, 34 were designed to assess knowledge about medical aspects and 21 evaluate social aspects of epilepsy. Participants were required to respond "true" or "false" to each statement and to answer to one multiple choice question about the prevalence of the disease. Each correct answer scores 1 point.

Translation of the original English version of the instrument preceded retranslation and semantic corrections, and was performed and reviewed by experts in the field and by the researchers from each center, to allow the EKQ to be employed in the official language of each country. Alternatives of question about the prevalence of epilepsy were changed to contemplate the most recent data on this topic.

This research was in accordance to Declaration of Helsinki and Ethical regulations of each country involved. Its procedures were approved by ethical instances from each center. All participants gave written or electronic informed consent to participate.

Fig. 1. Courses involved in the research by center.

Table 1
Demographic data of research participants.

	n	%	Age (years)	Gender (% females)
Brazil	41	40.2	27.2 ± 7.4	80.5
United States of America	28	27.5	23.8 ± 3.9	42.9
Argentina	15	14.7	24.1 ± 2.5	53.3
Portugal	18	17.6	24.6 ± 8.4	72.2

Data are expressed as means ± standard deviations.

Students' electronic contacts were provided by each University, and the ones who agreed to participate received an e-mail containing a link to the research instrument at the SurveyMonkey platform (www.surveymonkey.com). This procedure occurred in all centers except the USA, where the instrument was paper print.

The instrument exhibited low internal consistency for the total sample. Cronbach's alpha was 0.40 and 0.21 for the domains "medical aspects of epilepsy" and "social aspects of epilepsy", respectively.

Data analysis was conducted in SPSS v.22 for Windows with descriptive statistics. Comparison of the results among countries was performed by one-way analysis of variance (ANOVA) with Tukey's post hoc test. The level of significance was set at 0.05.

3. Results

Five hundred and seventy students were invited to participate the study (Brazil n = 228; USA n = 28; Argentina n = 186; Portugal n = 87; South Africa n = 41), but only 17.9% (n = 102) agreed to participate. Demographic data of participants are shown in Table 1. Participants from South Africa were excluded from the analysis, because of the fact that only one of them was a health student.

When asked about ever having assisted a person with epilepsy, Portuguese students were the ones who had the greatest contact with these patients: 38.9% of them had already assisted a person with epilepsy during a convulsive crisis, followed by the ones from Argentina (26.7%), Brazil (24.4%), and USA (10.7%).

Answers to EKQ revealed a mean score of 36.9 (out of 55, minimum = 14, maximum = 48) in the total sample. Regarding the medical and social aspects of epilepsy, students presented a mean score of 23.4 (out of 34, minimum = 6, maximum = 29) and 13.7 (out of 21, minimum = 7, maximum = 19), respectively. Differences among countries are shown in Table 2.

In the medical aspects section of the instrument, statements with lower percent of correct answers were related to physiopathology, medication, and treatment of the disease. As for the social aspects, statements with higher percent of mistaken answers were related to being able to drive, practice sports and work, and procedures in case of convulsion.

Analysis of variance revealed a significant difference in EKQ scores of Portugal and USA (p = 0.025). The same was observed regarding the scores of the medical aspects of epilepsy (p < 0.001), however, no statistically significant difference was observed among the scores of the social aspects of the disease (p = 0.170).

Table 2
EKQ score by country.

	Medical aspects	Social aspects	EKQ score
Brazil	22.9 ± 2.8 [ab]	14.2 ± 2.1 [a]	37.5 ± 3.8 [ab]
United States of America	21.9 ± 4.1 [b]	13.0 ± 2.7 [a]	34.9 ± 5.9 [b]
Argentina	24.3 ± 2.9 [ab]	14.1 ± 1.5 [a]	38.5 ± 3.6 [a]
Portugal	25.0 ± 2.3 [a]	13.6 ± 2.4 [a]	38.5 ± 4.2 [a]
Total sample	23.2 ± 3.3	13.7 ± 2.2	36.9 ± 4.7

EKQ: Epilepsy Knowledge Questionnaire. Data are expressed as means ± standard deviations. Different superscript letters indicate significant statistical differences.