

Hindawi Publishing Corporation
Epilepsy Research and Treatment
Volume 2012, Article ID 819859, 13 pages
doi:10.1155/2012/819859

Research Article

Beliefs and Attitudes about Childhood Epilepsy among School Teachers in Two Cities of Southeast Brazil

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Received 29 November 2011; Revised 15 March 2012; Accepted 19 April 2012

Academic Editor: Josemir W. Sander

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Childhood epilepsy is a chronic neurological disorder associated with profound psychosocial limitations epileptic children's routine. Lack of information and inappropriate beliefs are still the factors that most contribute to the stigma and discrimination. This study aimed at characterizing teacher's beliefs and attitudes at regular and special schools in two cities of southeastern Brazil where students with epilepsy studied. Fifty-six teachers of public regular schools and specialized educational institutions for children with disabilities from two cities of Southeast Brazil who had epileptic children in their classroom completed the Brazilian version of The Epilepsy Beliefs and Attitudes Scale: Adult Version and answered a data sheet about sociodemographic characteristics. The results showed that no significant differences ($P \leq 0.05$) have been found between the beliefs and attitudes of teachers in mainstream and special schools but both schoolteachers had more inappropriate beliefs and attitudes than appropriate ones against childhood epilepsy. These findings raise an important issue, providing us with the knowledge that epilepsy is still a condition which is surrounded by wrong beliefs. Also, educational programs could help reduce the gaps in knowledge about how such disease has been perceived worldwide.

1. Introduction

Epilepsy is the most common chronic neurological disorder in childhood, affecting approximately 5 to 10 children in 1000 [1].

When compared to other chronic diseases, epilepsy is one of the disorders that most affects the behavior and quality of life of children, mainly because of lack of information about the condition that creates a gulf of misunderstanding. The social stigma, superstition, and irrational beliefs have a negative influence on daily life of children with epilepsy and their families [2].

Throughout centuries in the history of epilepsy, concepts related to causes, treatment, and cure of epilepsy have been extensively modified. Over the past 25 years, especially in

the last decade, significant efforts have been developed against centuries of ignorance and stigma that result in discrimination against people with epilepsy [3].

It is necessary to understand the process of stigmatization, conceptions, and beliefs involved in epilepsy. Currently, in developed countries, magical explanations about epilepsy have led to biomedical data, but in poor countries information without scientific basis still persist, motivated by prejudice, stigma, and distorted beliefs. These beliefs, whose origins date back to the past, can make the relationship between the community and epilepsy obscure and it might have a negative effect on the social identity of children who suffer from the disorder [4].

Thus, there is a poor perception about epilepsy that might affect different areas of life such as health, employ-

ment, and social and family relationships [5]. Self-esteem and self-confidence are also affected, contributing to decreased quality of life. When a person sees oneself as an “epileptic,” a world of meanings and beliefs can be activated, influencing negatively their psychosocial adjustment. Fear and shame become common in the routine of children with epilepsy [6].

Due to prejudice and negative attitudes towards epilepsy, people with the disorder tend to experience psychosocial problems such as fear, shame, social isolation, difficulties in social relationships, restriction of activities, among others. Consequently, the person with epilepsy fails to fit into society because they do not get a job, do not feel accepted, and have difficulty starting a family. For this reason, epilepsy demands adapting to a new lifestyle but also requires a redefinition of self-identity [7].

In Brazil some authors describe public awareness, beliefs, and attitudes towards epilepsy. A study carried out with 125 teachers and 800 parents in a suburban public school in the city of Curitiba reveals that those individuals from the first group displayed poor knowledge and attitudes towards epilepsy and teachers had a relatively better knowledge but demonstrated equal prejudice. Also, half of the responders were uneducated in terms of assisting a person having an epileptic seizure [8].

In another study, the authors assessed the perception of epilepsy as a stigma with 94 teachers of public schools in Campinas. The teachers showed that they have adequate knowledge about epilepsy. However, this reaction contradicts the social attitudes seen in our society, which are characterized by prejudice and stigma [9].

Efforts to identify prejudices and myths about the disease are very important. They can serve as basis for interventions to reduce stigma and negative attitudes and beliefs of the general community towards people with epilepsy and their families [10].

Thus, this study aimed at characterizing the teachers’ beliefs and attitudes at regular and special schools in two cities of southeastern Brazil where students with epilepsy studied.

2. Methods

This study was carried out in two medium-sized cities of southeastern Brazil. One of these cities, located in the State of Sao Paulo, has approximately 209,000 inhabitants whose economy is based on industry and commercial activities.

The other is located in the State of Rio de Janeiro in a mountainous region which has approximately 296,000 inhabitants. The economy of the city is based on tourism and commercial activities.

The two cities are considered a regional educational pole once there are several public and private primary and secondary schools and the first has a public university. The present study was approved by the local ethics committee. A declaration of informed consent was obtained from all participants and respondents were free to abort the interview any time they wished to. The participants’ identities were not revealed and confidentiality was assured to all respondents.

Fifty-six teachers of public regular schools and specialized educational institutions for children with disabilities where epileptic children studied were invited to participate in the study, by answering a data sheet with details about socio-demographic characteristics, graduate and undergraduate degree, and familiarity with childhood epilepsy and chronic diseases. In addition, the inclusion criteria were as follows: being older than 18 years old, having a child with epilepsy in the classroom, and accepting to participate voluntarily in the study.

Then teachers were asked to complete the Brazilian version of The Epilepsy Beliefs and Attitudes Scale (EBAS)—Adult Version. The instrument was designed to assess beliefs and attitudes of general community towards children with epilepsy. The scale consists of a short introduction that contains information about the content and goals of the scale, followed by instructions for filling it out. Part I consists of six questions that address the general knowledge about epilepsy and experience with the disease [11]. A translated version from the original in Brazilian Portuguese is in the Appendix.

Part II begins with story about a child with epilepsy, highlighting the symptoms and behavior during and after the occurrence of a seizure, followed by forty-six statements based on beliefs and attitudes towards childhood epilepsy. After reading the story, participants were asked to select within a Likert scale of four points which of the following responses represent the intensity degree of belief for each item: (4) totally believe, (3) I strongly believe, (2) I believe a little (1) not at all [11].

The 46 items are divided into three subscales: neurological, metaphysical, and environmental/psycho. The neurological subscale is comprised of thirteen statements—items 4, 6, 12, 15, 19, 23, 26, 31, 35, 37, 44, 45, and 46; the metaphysical subscale contains seven items—items 5, 13, 16, 25, 32, 39 and 41, the environmental/psycho scale is comprised of nineteen statements—items 1, 2, 3, 7, 8, 9, 10, 11, 14, 17, 18, 20, 21, 22, 24, 27, 28, 29, and 30 [11].

In the original version of EBAS and also in the Brazilian version, there is no score to quantify the beliefs and attitudes of the participants because the scale statements deal with subjective concepts, but the answers are distributed along a *continuum*. When the belief or attitude is positive—as in statements 6, 9, 15, 17, 19, 20, 22, 23, 27, 28, 36, 37, 41, 42, 43, and 44—the answer “totally believe (4)” is considered excellent, the answer “I strongly believe (3)” is considered good, “I think a little (2)” is regular, and the answer “do not believe (1)” is considered bad.

The analysis of the responses occurs reversely when the belief or attitude is negative [11]. For items 1, 2, 3, 4, 5, 7, 8, 10, 11, 12, 13, 14, 16, 18, 21, 24, 25, 26, 29, 30, 31, 32, 33, 34, 35, 38, 39, 40, 45, and 46, choosing the answer “do not believe (1)” is considered excellent, the option “I think a little (2)” is considered good, the answer “I strongly believe (3)” is regular, and the option “totally believe (4)” is considered bad.

The scale has been through studies of cross-cultural adaptation to Brazilian Portuguese in which item equivalence as well as semantic and operational conceptual equivalence have been checked. The results showed that the concepts

were considered relevant to Brazilian culture and the items were considered appropriate for the ability to represent these concepts in target population and showed good semantic equivalence comparing the final Portuguese version and the original [11].

The psychometric parameters of Brazilian version of EBAS were tested by conducting the scale with 545 adults in the community. The results indicated internal consistency index for the overall scale of 0.89. Factor analysis confirmed the original structure with three subscales (neurological, metaphysical, and environmental/psycho) and test-retest indicated that the instrument is reliable and can be used for people in general [12].

For data collection, in the city in the State of São Paulo, the researcher visited all schools and selected those in which there were children who were diagnosed or suspected with epilepsy. The diagnosis was obtained either by consulting the medical register from school records of some children from public schools, or from medical records of children from special schools or else, by telephone or visit to the child's doctor.

Regarding the city of Rio de Janeiro, data was collected through contact with one of the judges who participated in the process of cultural adaptation of the Brazilian version of the instrument used in this paper. This judge expressed interest in participating in the study by offering voluntarily to collect data in his city.

Besides being a university professor, the evaluator was a member of a voluntary nongovernmental organization where children with epilepsy are treated. Considering the similarity of the cities, and aiming at raising the number of study participants and continuing the practice of exchanging information with the researcher, we chose to perform the data collection also in Rio de Janeiro. So the contact with schools and teachers of children was also done by this nongovernmental organization, but the data collection was done in schools where the children studied.

The results obtained by administering the EBAS—Adult Version were analyzed descriptively and inferentially. The responses of teachers in mainstream and special schools to the questions in Parts I and II of the Brazilian version of EBAS were analyzed using frequencies and medium, respectively. Then we used the Student *t*-test ($P \leq 0.05$) for comparative analysis between the mean responses of teachers in three subscales that comprise the scale as a whole.

3. Results

3.1. Socio-Demographic Characteristics of the Sample and Familiarity with Epilepsy. Among the 56 teachers who participated in the study, 35 (62.5%) lived in the city located in the State of São Paulo and 21 (37.5%) in the State of Rio de Janeiro. Table 1 shows a summary of the numbers of teachers in mainstream and special schools.

The main data related to the schools, teachers' age, sex, and religions are listed in Table 2.

According to Table 1, 51 (91%) participants were female and 31 (55%) were married, 43% of the teachers' age range

from 30 to 40 years or more and 43 (76.7%) of them had a university degree.

The responses to the questions about epilepsy training indicated that 26 (93%) regular school teachers have never received specific information about epilepsy and 2 of them (7%) said that they received information during the undergraduate course.

In the specialized educational institutions, 26 (93%) of teachers also reported that they had never received any information or specific training about epilepsy, 1 of them (3.5%) said that he was instructed in the school where he works, and 1 (3.5%) said that he learned about epilepsy in a specialization course.

Considering that they had already worked with other children with health problems, among regular school teachers 14 (50%) said that this was the first time they had a student with health problems in the classroom.

The other 14 (50%) teachers said that it was not the first time this had happened. Three of them said that they taught students with Down Syndrome; two said they taught students with Attention Deficit Disorder and Hyperactivity Disorder (ADHD); two said that they taught students with cerebral palsy, two with diabetes, a student with asthma, and a student with schizophrenia; 2 teachers have worked with more than a student with health problems, including other students with epilepsy, learning difficulties, behavioral problems, and Down Syndrome.

Still considering the same issue, all 28 teachers in special schools reported that they had worked with children with various diseases among which cerebral palsy, various syndromes, other children with epilepsy, intellectual disability, hearing, visual or multiple impairment, myelomeningocele, hydrocephalus, and ADHD were cited.

3.2. Teachers' Beliefs and Attitudes. The frequencies of responses provided by teachers of children from regular schools from the city located in the State of São Paulo to Part I of the Brazilian version of EBAS—Adult Version are summarized in Table 3.

The frequencies of responses provided by teachers of children from regular schools from the city located in the State of Rio de Janeiro to Part I of the Brazilian version of EBAS—Adult Version are summarized in the Table 4.

The frequencies of responses provided by teachers of children from all regular schools to Part I of the Brazilian version of EBAS—Adult Version are summarized in the Table 5.

According to the data in Table 5, all teachers had heard or read about epilepsy and one of them said he knew a nickname for the disease ("little evil"). More than half of the participants said they had already seen someone having a seizure (question 3) and all denied that they were epileptics (issue 4). In Question 5, only four participants said they had family members who were epileptics (brother and grandfather). In the issue 6, 15 teachers said they knew other people with epilepsy: 3 of them had friends and 1 knew a relative of a friend with epilepsy, 3 had neighbors with epilepsy, 2 had coworkers with the disease, and the others had students with the condition.

TABLE 1: School teachers and special schools.

State	Regular school	Special school	Total
São Paulo	10 (36%)	25 (89%)	35
Rio de Janeiro	18 (64%)	3 (11%)	21
Total	28	28	56

TABLE 2: Demographic characteristics of the teachers.

School placement	Sociodemographic variables	Categories	N	%
Public regular school	Gender	Female	25	89
		Male	3	11
	Age (years)	20–30	7	25
		30–40	9	32
		>40	12	43
	Degree	Undergraduate	20	68
		Specialization	7	25
Master's degree		1	4	
Specialized educational institutions	Gender	Female	26	93
		Male	2	7
	Age (years)	20–30	6	21
		30–40	12	43
		>40	10	36
	Degree	Undergraduate	24	86
		Specialization	4	14

TABLE 3: Frequencies of responses provided by teachers from regular schools of the city in the State of São Paulo to Part I of EBAS—Adult Version.

Questions	Answers	N	%
1	Yes	10	100.0
	No	0	0.0
2	Yes	0	0.0
	No	10	100.0
3	Yes	1	10.0
	No	9	90.0
4	Yes	0	0.0
	No	10	100.0
5	Yes	0	0.0
	No	10	100.0
6	Yes	3	30.0
	No	7	70.0

TABLE 4: Frequencies of responses provided by teachers from regular schools of the city in the State of Rio de Janeiro to Part I of EBAS—Adult Version.

Questions	Answers	N	%
1	Yes	18	100.0
	No	0	0.0
2	Yes	1	5.5
	No	17	94.5
3	Yes	12	66.7
	No	6	33.3
4	Yes	0	0.0
	No	18	100.0
5	Yes	4	22.2
	No	14	77.8
6	Yes	12	66.7
	No	6	33.3

The frequencies of responses provided by teachers of children from regular schools from the city located in the State of São Paulo to Part I of the Brazilian version of EBAS—Adult Version are summarized in the Table 6.

The frequencies of responses provided by teachers of children from regular schools from the city located in the

State of Rio de Janeiro to Part I of the Brazilian version of EBAS—Adult Version are summarized in the Table 7.

Table 8 contains the responses given by teachers of children from all special schools for the questions in the Part I of the Brazilian version of EBAS—Adult Version.

According to the data in Table 8, all teachers in special schools had already read or heard something about epilepsy

TABLE 5: Frequencies of responses provided by teachers from all regular schools to Part I of EBAS—Adult Version.

Questions	Answers	<i>N</i>	%
1	Yes	28	100
	No	0	0
2	Yes	1	4
	No	27	96
3	Yes	13	46.4
	No	15	53.6
4	Yes	0	0
	No	28	100
5	Yes	4	14
	No	24	86
6	Yes	15	54
	No	13	46

TABLE 6: Frequencies of responses provided by teachers from special schools of the city in the State of São Paulo to Part I of EBAS—Adult Version.

Questions	Answers	<i>N</i>	%
1	Yes	25	100.0
	No	0	0.0
2	Yes	0	0.0
	No	25	100.0
3	Yes	11	44.0
	No	14	56.0
4	Yes	0	0.0
	No	25	100.0
5	Yes	3	12.0
	No	22	88.0
6	Yes	10	40.0
	No	15	60.0

but did not know another name for the disease. In question 3, 15 (54%) said they had witnessed an epileptic seizure and in question 4 all denied that they were epileptics. In addition, only 3 (11%) participants said there were people with epilepsy in the family (uncle, cousin, and grandfather). In question 6, among the 12 participants who knew someone else with the disease, 1 had a friend with epilepsy and two knew a relative of a friend, one had an epileptic neighbor, one knew a relative of a neighbor, two had epileptic coworkers and the others had students with epilepsy.

The frequencies of responses provided by teachers of children from regular schools from the city located in the State of São Paulo to Part II of the Brazilian version of EBAS—Adult Version are summarized in Table 9.

The frequencies of responses provided by teachers of children from regular schools from the city located in the State of Rio de Janeiro to Part II of the Brazilian version of EBAS—Adult Version are summarized in Table 10.

TABLE 7: Frequencies of responses provided by teachers from special schools of the city in the State of Rio de Janeiro to Part I of EBAS—Adult Version.

Questions	Answers	<i>N</i>	%
1	Yes	3	100.0
	No	0	0.0
2	Yes	0	0.0
	No	3	100.0
3	Yes	2	66.7
	No	1	33.3
4	Yes	0	0.0
	No	3	100.0
5	Yes	0	0.0
	No	3	100.0
6	Yes	2	66.7
	No	1	33.3

TABLE 8: Frequencies of responses provided by teachers from all special schools to Part I of EBAS—Adult Version.

Questions	Answers	<i>N</i>	%
1	Yes	28	100
	No	0	0
2	Yes	0	0
	No	28	100
3	Yes	13	46
	No	15	54
4	Yes	0	0
	No	28	100
5	Yes	3	11
	No	25	89
6	Yes	12	43
	No	16	57

The frequencies of responses provided by teachers of children from special schools from the city located in the State of São Paulo to Part II of the Brazilian version of EBAS—Adult Version are summarized in Table 11.

The frequencies of responses provided by teachers of children from special schools from the city located in the State of Rio de Janeiro to Part II of the Brazilian version of EBAS—Adult Version are summarized in Table 12.

Table 13 summarizes the responses given by teachers from special and regular schools of the two cities involved in this study to the questions in Part II of the Brazilian version of EBAS—Adult Version.

According to Table 13, the mean responses for the three subscales were between 2.6 and 2.9 indicating that teachers “believed a little” or “believe a lot” in the statements that comprised the subscales.

Thus, Table 14 shows the appropriate beliefs that teachers from both regular and special schools presented in the three subscales of the neurological subscale of EBAS.

TABLE 9: Frequencies of responses provided by teachers from regular schools of the city in the State of São Paulo to Part II of EBAS—Adult Version.

Subscales of EBAS	Response options	Frequency	%	Score (average)
Neurological	Totally believe	52	40	2.8
	Believe a lot	33	25.4	
	Believe a little	17	13.0	
	Not at all	28	21.6	
Metaphysical	Totally believe	50	74.6	3.5
	Believe a lot	11	16.4	
	Believe a little	0	0.0	
	Not at all	6	9.0	
Environmental/psychophysical	Totally believe	85	44.9	3.0
	Believe a lot	46	24.3	
	Believe a little	30	15.8	
	Not at all	28	15.0	

TABLE 10: Frequencies of responses provided by teachers from regular schools of the city in the State of Rio de Janeiro to Part II of EBAS—Adult Version.

Subscales of EBAS	Response options	Frequency	%	Score (average)
Neurological	Totally believe	45	19.3	2.2
	Believe a lot	36	15.5	
	Believe a little	66	28.3	
	Not at all	86	36.9	
Metaphysical	Totally believe	7	8.1	1.6
	Believe a lot	8	9.2	
	Believe a little	15	17.2	
	Not at all	57	65.5	
Environmental/psychophysical	Totally believe	26	9.8	1.8
	Believe a lot	33	12.5	
	Believe a little	61	23.0	
	Not at all	145	54.7	

TABLE 11: Frequencies of responses provided by teachers from special schools of the city in the State of São Paulo to Part II of EBAS—Adult Version.

Subscales of EBAS	Response options	Frequency	%	Score (average)
Neurological	Totally believe	70	22	2.3
	Believe a lot	60	18.8	
	Believe a little	60	18.8	
	Not at all	129	40.4	
Metaphysical	Totally believe	49	28.0	2.1
	Believe a lot	13	7.4	
	Believe a little	21	12.0	
	Not at all	92	52.6	
Environmental/psychophysical	Totally believe	184	24.5	2.3
	Believe a lot	177	23.6	
	Believe a little	206	27.5	
	Not at all	183	24.4	

TABLE 12: Frequencies of responses provided by teachers from special schools of the city in the State of São Paulo to Part II of EBAS—Adult Version.

Subscales of EBAS	Response options	Frequency	%	Score (average)
Neurological	Totally believe	9	23.0	2.0
	Believe a lot	3	7.8	
	Believe a little	6	15.4	
	Not at all	21	53.8	
Metaphysical	Totally believe	0	0.0	1.9
	Believe a lot	6	28.5	
	Believe a little	6	28.5	
	Not at all	9	43.0	
Environmental/psychophysical	Totally believe	3	5.3	1.7
	Believe a lot	9	15.8	
	Believe a little	11	19.3	
	Not at all	34	59.6	

TABLE 13: Frequency of responses provided by all teachers for Part II of the Brazilian version of EBAS—Adult Version.

Subscales of EBAS	School placement	Response options	Frequency (average)	%	Score (average)
Neurological	Regular school teachers	Totally believe	7.67	27.4	2.6
		Believe a lot	5.33	19.0	
		Believe a little	6.42	22.0	
		Not at all	8.58	30.7	
	Special school teachers	Totally believe	6.67	23.8	2.8
		Believe a lot	4.67	16.7	
		Believe a little	5.00	17.9	
		Not at all	11.67	41.7	
Metaphysical	Regular school teachers	Totally believe	8.00	28.6	2.8
		Believe a lot	2.57	9.2	
		Believe a little	3.29	11.7	
		Not at all	14.14	50.5	
	Special school teachers	Totally believe	7.00	25.0	2.9
		Believe a lot	2.71	9.7	
		Believe a little	3.86	13.8	
		Not at all	14.43	51.5	
Environmental/Psychophysical	Regular school teachers	Totally believe	6.32	22.5	2.8
		Believe a lot	4.64	16.6	
		Believe a little	5.96	21.3	
		Not at all	11.12	39.6	
	Special school teachers	Totally believe	7.16	25.6	2.8
		Believe a lot	3.52	12.6	
		Believe a little	5.88	21.0	
		Not at all	11.44	40.9	

It is important to highlight that for question 38 (“I believe that a child like John should be kept away from other people”), although the overall average for the subscale of environmental/psychophysical issues was 2.8 for both regular and special school teachers, all participants responded that they believed in this statement.

Table 15 shows the appropriate beliefs for the three subscales that the neurological subscale of EBAS presented by both regular and special school teachers.

Finally, Table 16 presents the results of the comparison between the answers of the questions in Part II of the Brazilian version of EBAS: Adult Version of teachers from

TABLE 14: Appropriate beliefs and attitudes of teachers.

Subscales	Items	Content
Neurological	6	I believe that a serious illness (measles, malaria, high fever, dengue, meningitis, and other) that affects the brain can make a child like John have epilepsy
	15	I believe that a doctor is the best person to assist a child like John
	19	I believe that a child like John inherits epilepsy from a parent (mother or father)
	23	I believe that birth injury can result in epilepsy in a child like John
	37	I believe that a genetic defect can cause epilepsy in a child as John
Metaphysical	41	I believe that people's faith in a higher power helps to deal with epilepsy
Environmental/psychophysical	17	I believe that a child like John can swim when accompanied by their parents
	20	I believe that parents of a child as John have difficulty accepting that their child has epilepsy
	22	I believe that a child like John must participate in all physical activities at school
	28	I believe that a child like John may have more seizures when he does not sleep well
	36	I believe that the parents of a child as John continually fear the possibility of their child having a seizure at any time
	42	I believe that seizures can make a child as John seems confused

mainstream and special schools, considering the three subscales comprising the instrument ($P \leq 0.05$).

According to the data presented in Table 16, there was no statistic significant differences between teachers in mainstream and special schools in the three subscales that comprise the Brazilian version of EBAS: Adult Version.

4. Discussion

According to the results that were obtained by this study, national and international research shows that teachers are familiar with epilepsy but have little knowledge about the causes and disease management in school [13–16].

The findings of a study conducted in 23 elementary schools in the United States showed that for teachers, AIDS and epilepsy were the diseases most likely to cause significant problems in academic performance. Also 30% of educators believe that a child with epilepsy in the classroom would distract colleagues and disrupt the learning environment [16].

The authors also compared the perception of teachers in mainstream and special schools and found no statistic significant differences in the impact of chronic diseases in school [16]. In the present study, the beliefs and attitudes of teachers in mainstream and special schools for the three subscales of the Brazilian version of EBAS—Adult Version were also compared and no significant differences were found.

The results of other studies conducted around the world have shown that many teachers believed that children with epilepsy face discrimination and had objected to having a student with epilepsy in their classrooms [13]. Some teachers believed that children with epilepsy had below average intelligence compared to other children who had no disease and said that children with epilepsy should attend special classes [14].

On the other hand the findings of some studies suggest that a small percentage of teachers believe that children with epilepsy were as intelligent as other children and said they would allow their children to play or study with a child with epilepsy or to marry someone who had epilepsy [13–15].

Regarding the knowledge about the causes of epilepsy most respondents believe that epilepsy is a disorder of the central nervous system and stated that it is caused by mental illness, genetic problems, infections, dysfunction, and brain damage, tumors, trauma, and possession [14, 15].

Furthermore, although many of the teachers have stated that they knew someone who had epilepsy, had heard about the disease, and had witnessed a seizure, some of them still believed that epilepsy was contagious and they were afraid to have a student with epilepsy in the classroom [13–15].

However, another study showed that teachers who had previous contact with children with these chronic diseases showed the least concern about the limitations of their students and academic problems they might have about the relationship with colleagues [16].

Regarding treatment, teachers believed that epilepsy could be cured using both modern methods (surgery) and traditional medicine (traditional methods were cited as the use of medicinal plants and drug treatment) and said they should call an ambulance and take the child to hospital when there was a seizure [15].

Comparing the results obtained in this study with the results reported in the literature, we found that teachers also believed that children with epilepsy faced discrimination because they were often rejected by their peers (item 30) and people judged them as inferior because they have epilepsy (item 34). Regarding the knowledge about epilepsy, the teachers did not believe there was a real cure for the disease (item 12) and believed that a child with epilepsy should stop taking medication when their seizures were under control (item 31). They showed adequate knowledge when saying that a child could have epilepsy because of an abnormality

TABLE 15: Inappropriate beliefs and attitudes of teachers.

Subscales	Items	Content
Neurological	4	I think a lot of anticonvulsant medication in the body can make a child like John have more seizures
	12	I believe that there is no real cure for epilepsy
	26	I believe that a child like John should stop taking anticonvulsants because his seizures are under control
	31	I believe that medication for seizures should be taken only when John has a seizure
	35	I think we should call an ambulance when a child like John has a seizure
	44	I believe that a child like John may have epilepsy because of an abnormality in the brain
	45	I believe that the type of epilepsy John has is a kind of mental illness
	46	I believe that no one really knows what causes epilepsy in a child like John
Metaphysical	5	I believe that prayers can cure epilepsy in a child like John
	13	I believe that a child like John has epilepsy because it is the God's will
	16	I believe that miracles can cure epilepsy in a child like John
	25	I believe that fate is what makes a child like John have epilepsy
	32	I believe that a child like John has epilepsy because someone put an "evil eye" on his mother when she was pregnant
	39	I believe that a spiritual leader (e.g., priest or pastor) can provide the best help for a child like John
Environmental/psychophysical	1	I believe that the use of herbs or plants (natural medicine) is the best health care for a child like John
	2	I believe anyone can get epilepsy by touching a person who is having a seizure
	3	I believe that a child like John has seizures when he is very angry about something
	7	I believe that a child like John often presents difficulties in school
	8	I believe that a child like John may have seizures when he plays in the sun for a long time
	9	I believe that the parents of a child like John feel hurt by their son because he has epilepsy
	10	I believe that a child like John has epilepsy because he is possessed by an evil spirit
	11	I believe that a child like John had seizures when he is lazy or bored and has nothing to do
	14	I believe that sudden changes in the weather (e.g., get very hot/cold/damp/wet) can make a child like John have seizures
	18	I believe that certain foods/drinks can make a child like John have seizures
	21	I believe that parents of a child as John have difficulty accepting that their child has epilepsy
	24	I believe that the parents of a child like John can convince him to hide from others who have epilepsy
	27	I believe that poor blood circulation in the brain can cause seizures in a child like John
	29	I believe that a glass of water or other liquid could stop a seizure in a child like John
	30	I believe that a child like John is often rejected by their peers
33	I believe that traveling in a closed vehicle (without airflow) can make a child like John have seizures	
34	I believe that if a child like John has epilepsy, people will judge him as inferior	
40	I believe that a child like John has seizures when he does a lot of homework	
43	I believe that a child like John has seizures due to sudden changes in his mood	

TABLE 16: Comparison between the mean responses of teachers in mainstream and special schools for the three subscales of the Brazilian version of EBAS—Adult Version.

Subscales	<i>P</i> value
Neurological	<i>P</i> = 0.249
Metaphysical	<i>P</i> = 0.369
Environmental/psychophysics	<i>P</i> = 0.712

in the brain, genetic disorders, birth injuries, or genetic inheritance (items 6, 19, 23, 37, and 44) but believed that epilepsy could be a kind of mental illness (item 45).

We also observed that some teachers in this study had inappropriate beliefs and attitudes about the treatment of epilepsy and the use of herbs or plants (item 1), the belief that epilepsy is contagious (item 2) and that a child with epilepsy present difficulties in school (item 7).

Regarding the belief that a child with epilepsy should stay away from other people (item 38), the results showed that all teachers, both from regular and special schools, said they did not believe in this statement. In the study conducted in Brazil, the results showed that even after a specific course on the subject, 18% of teachers agreed with the idea that a person with epilepsy should live alone [17].

The present study also revealed that although teachers have demonstrated inadequate beliefs, they had some positive attitudes towards children with epilepsy such as the idea that they could perform any type of physical activity, including swimming when accompanied by their parents. Likewise, the literature shows that teachers had positive attitudes towards children with epilepsy who were in classrooms, saying that they would not object to the presence of an epileptic student in the class and that the beliefs of teachers and other school members are important and that there is little information about what teachers think about children with epilepsy and other chronic diseases [13–17].

The results of this study also indicated that teachers beliefs and attitudes indicated they had insufficient knowledge about epilepsy. In addition, we found that 93% of teachers in mainstream and special schools had never received specific training about epilepsy; only one had received guidance in school and another in a specialization course. These results emphasize the lack of knowledge about epilepsy and the need for clarification, especially when considering that teachers in special schools who are often in contact with these children were also found to have little knowledge about the disease.

Finally, we can conclude that childhood epilepsy is still a disease surrounded by myths and the existing knowledge gap must be filled in order to soften the psychosocial burden of this condition.

This phenomenon, known worldwide, alerts to the need for more discussion and dissemination of the topic along with the development of educational programs and strategies towards education in epilepsy, reducing and preventing the growth of the stigma, negative attitudes, and inadequate beliefs.

Appendix

Translated Version of Brazilian Version of the Epilepsy Beliefs and Attitudes Scale (EBAS): Adult Version

The statements of Epilepsy Belief Scale reflect the beliefs reported by people of diverse cultural groups. Many of these beliefs develop culturally through relatives, friends, stories that one person tells another, and so on. Often people do not share their beliefs with physicians or health professionals for fear of being ridiculed or being considered ignorant or backward. However, understanding people's beliefs is very important. This will help us understand what people think about epilepsy and what they believe are their causes, what triggers the crisis, and how they deal with people with epilepsy. Information gathered through this scale will help health professionals to communicate better with their patients.

The Belief Scale in Epilepsy has two parts:

Part I contains questions that require answers YES or NO.

Part II begins with a description of a person with epilepsy.

Then there are statements that reflect a wide variety of beliefs. Please read each statement carefully and circle one of four numbers that best reflects the intensity/degree of your belief, that is, what you most believe. Please answer according to what you believe and not according to what you think you should believe. There is no right or wrong belief. Remember, your answer should reflect what you believe.

Please do not leave any item blank.

Part I. Please, circle YES or NO

- (1) Have you heard or read about epilepsy?
YES/NO
- (2) Do you know another name for epilepsy?
YES/NO
If YES, what is the name? ...
- (3) Have you ever seen someone having a seizure?
YES/NO
- (4) Do you have epilepsy?
YES/NO
If YES, what type? ...
- (5) Someone in your family has epilepsy?
YES/NO
Who? (Circle as needed)
Son; Daughter; Husband; Wife; Mother; Father;
Brother; Sister; Uncle; Aunt; Grandfather; Grand-
mother; Other: ...
- (6) Do you know or did you know someone else with epilepsy?
YES/NO

Who is this person? (Circle as needed)

Friend; Friend's relative; Neighbor; Neighbor's relative; Coworkers ; Other: . . .

Part II. Please read the following story that describes a child with a particular type of epilepsy and keep it in your mind while responding to the rest of Epilepsy Belief Scale.

The story. There are many types of epilepsy. This story talks about a type of epilepsy. When John begins to have seizures, he usually starts to chew, bite his lips, swallow, scratch, or rub. He seems to be taking something or getting flustered as if he was looking for something and/or sometimes running

from one side to another, and/or taking off his clothes, as if he could not control this behavior. At other times, he has a strange behavior: how to take something in a cup (when he is not holding anything) and/or as if someone pushed him in response to being contained. Often, this behavior is followed by loss of consciousness, and when John wakes up, he feels confused. He sometimes says he has an aura, a strange sensation in the stomach up to the head, or feeling of "déjà vu" (feeling that these experiences have been experienced before). Sometimes, John seems to have delusions and/or distortions of perception and ideas and his behavior may seem funny or weird. These seizures can be brief lasting 15 seconds or longer lasting eight minutes.

Please read each of the statements carefully and circle one of the numbers which best reflects the strength your belief. Please give your response according to what you believe and not according to what you think you should believe. There is no right or wrong belief.

	Totally believe	Believe a lot	Believe a little	Not at all
(1) I believe that the use of herbs or plants (natural medicine) is the best health care for a child like John.	4	3	2	1
(2) I believe anyone can get epilepsy by touching a person who is having a seizure.	4	3	2	1
(3) I believe that a child like John has seizures when he is very angry about something.	4	3	2	1
(4) I think a lot of anticonvulsant medication in the body can make a child like John have more seizures.	4	3	2	1
(5) I believe that prayers can cure epilepsy in a child like John.	4	3	2	1
(6) I believe that a serious illness (measles, malaria, high fever, dengue, meningitis, and other) that affects the brain can make a child like John have epilepsy.	4	3	2	1
(7) I believe that a child like John often has difficulties in school.	4	3	2	1
(8) I believe that a child like John may have seizures when he plays in the sun for a long time.	4	3	2	1
(9) I believe that the parents of a child like John feel hurt by their son because he has epilepsy.	4	3	2	1
(10) I believe that a child as John has epilepsy because he is possessed by an evil spirit.	4	3	2	1
(11) I believe that a child like John has seizures when he is lazy or bored and has nothing to do.	4	3	2	1
(12) I believe that there is no real cure for epilepsy.	4	3	2	1
(13) I believe that a child like John has epilepsy because it is God's will.	4	3	2	1
(14) I believe that sudden changes in the weather (e.g., getting very hot/cold/damp/wet) can cause a child as John to have seizures.	4	3	2	1
(15) I believe that a doctor is the best person to assist a child like John.	4	3	2	1
(16) I believe that miracles can cure epilepsy in a child like John.	4	3	2	1
(17) I believe that a child like John can swim when accompanied by their parents.	4	3	2	1
(18) I believe that certain foods/drinks can make a child like John have seizures.	4	3	2	1

(19) I believe that a child like John inherits epilepsy from a parent (mother or father).	4	3	2	1
(20) I believe that parents of a child as John have difficulty accepting that their child has epilepsy.	4	3	2	1
(21) I believe that changes in the phases of the moon (e.g., full moon, new moon) can cause seizures in a child like John.	4	3	2	1
(22) I believe that a child like John must participate in all physical activities at school.	4	3	2	1
(23) I believe that a birth injury can result in epilepsy in a child like John.	4	3	2	1
(24) I believe that the parents of a child like John can convince him to hide from others who have epilepsy.	4	3	2	1
(25) I believe that fate is what makes a child like John have epilepsy.	4	3	2	1
(26) I believe that a child like John should stop taking anticonvulsants because his seizures are under control.	4	3	2	1
(27) I believe that the poor blood circulation in the brain can cause seizures in a child like John.	4	3	2	1
(28) I believe that a child like John may have more seizures when he doesn't sleep well.	4	3	2	1
(29) I believe that a glass of water or other liquid could stop a seizure in a child like John.	4	3	2	1
(30) I believe that a child like John is often rejected by his peers.	4	3	2	1
(31) I believe that medication for seizures should be taken only when John has a seizure.	4	3	2	1
(32) I believe that a child like John has epilepsy because someone put an "evil eye" on his mother when she was pregnant.	4	3	2	1
(33) I believe that traveling in a closed vehicle (without airflow) can make a child like John have seizures.	4	3	2	1
(34) I believe that people may judge a child like John as inferior.	4	3	2	1
(35) I think we should call an ambulance when a child like John has a seizure.	4	3	2	1
(36) I believe that the parents of a child as John continually fear the possibility of their child having a seizure at any time.	4	3	2	1
(37) I believe that a genetic defect can cause epilepsy in a child as John.	4	3	2	1
(38) I believe that a child like John should be kept away from others.	4	3	2	1
(39) I believe that a spiritual leader (e.g., priest or pastor) can provide the best help for a child like John.	4	3	2	1
(40) I believe that a child like John has seizures when he does a lot of homework.	4	3	2	1
(41) I believe that people's faith in a higher power helps to deal with epilepsy.	4	3	2	1
(42) I believe that seizures can make a child as John seems confused.	4	3	2	1
(43) I believe that a child like John has seizures due to sudden changes in his mood.	4	3	2	1
(44) I believe that a child like John may have epilepsy because of an abnormality in the brain.	4	3	2	1
(45) I believe that the type of epilepsy John has is a form of mental illness.	4	3	2	1
(46) I believe that nobody really knows what causes epilepsy in a child like John.	4	3	2	1

Additional comments and suggestions are welcome. Please write your comments or specific beliefs that were not included as part of the scale above.

Thank you for participating in this research.

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