Survey on Public Awareness, Attitude and Understanding Towards Epilepsy among Cambodian People

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Abstract: *It is essential to have an accurate understanding of public attitudes towards epilepsy, as misconceptions and social stigma can significantly impact the quality of life of patients. This survey aimed to assess the awareness, attitudes, and understanding of epilepsy among the Cambodian population. The study was conducted in Cambodia among out-patients and relatives visiting in-patients at Khmer Soviet Friendship Hospital in 2019. A standard questionnaire, consisting of ten questions along with five questions translated into Khmer, was used for data collection. The initial eight questions were adapted from the Gallup Poll et al, with an additional seven questions included specifically for this study. Participants aged 15 years and older, residing in Cambodia without a family member affected by epilepsy, were included in the survey. Data analysis was performed using SPSS version 20. Out of 266 respondents, 82% reported having read or heard about epilepsy, 73.3% had witnessed a seizure, and 55.6% personally knew someone with epilepsy. Some negative attitudes were observed, with a portion objecting to their children associating with individuals with epilepsy, marrying them, or employing them in certain jobs, despite seizures not affecting job performance. Additionally, respondents expressed concerns about marrying individuals with epilepsy, societal discrimination, and the impact of epilepsy on education. The survey conducted in Cambodia revealed a high level of awareness about epilepsy among respondents. However, many still held negative attitudes towards individuals with epilepsy, indicating a need for education to promote understanding and reduce stigma. Additionally, there was a good level of comprehension regarding the causes and treatment of epilepsy.*

Keywords: epilepsy, awareness, attitude, understanding, Cambodia

1. Introduction

Epilepsy is frequently one of the most stigmatized conditions. The lack of public awareness and knowledge leads to stigmas and negative attitudes toward those with epilepsy. This neurological disorder, marked by recurrent seizures, affects over 50 million people globally [1] with 85% of cases found in developing countries [2]. Despite its prevalence as a chronic disease, public knowledge about epilepsy is limited, and it is often surrounded by erroneous beliefs. Individuals with epilepsy face significant stigma and discrimination, primarily due to myths and misconceptions about the disorder. This social stigma results in psychological and socioeconomic challenges, impacting their employment, education, social interactions, and reproductive lives [3]. Misunderstandings and false beliefs about epilepsy also negatively affect the prognosis of those with the condition. Superstitions and beliefs in supernatural causes often lead patients to seek religious or traditional remedies, which can worsen their situation. Healthcare services have been criticized for not adequately addressing these misconceptions, leaving patients disheartened. Public awareness campaigns and dedicated disease days are essential to reduce stigmas and misconceptions surrounding epilepsy. For educational strategies to be effective, they need to be based on extensive surveys that identify their scope and target [4]. In conclusion, understanding public knowledge, awareness, and attitudes about epilepsy is crucial to addressing the psychosocial and economic issues associated with the disorder.

1.1 Objectives of the study are

a) To determine the public awareness, attitude and understanding among Cambodian people towards epilepsy
b) To compare this with similar survey on the region

2. Methodology

2.1 Respondents

All respondents age equal to or more than 15 years old that were residents of Cambodia. Those with epilepsy or seizures or having family members with epilepsy or seizures were excluded. Patients who fulfilled the inclusion and exclusion criteria were counted into the study.

2.2 Survey setting and questionnaire

The study was performed in Cambodia consisting of outpatient visitnf and the relatives who visiting inpatients at Khmer Soviet Friendship Hospital. The survey was used a standard questionnaire of ten questions plus five questions translated in Khmer. The first eight questions originated from the Gallup Poll et al and seven more questions are added in for our study. The survey is based on a questionnaire conducted as one-to-one interview by medical students and medical staff. Data was collected by providing literate participants with a questionnaire translated in Khmer. Patients who were illiterate were asked the questions directly by a medical personnel (students, nurses or medical doctors).

2.3 Datanalysis

All data are stored in Excel and data entry was carried out with coding and verification. The data is analyzed using SPSS version 20. For description of baseline characteristics, number and percentage are used for categorical variables, and mean with standard deviation or median with 25th-75th percentile range are used for continuous variable according to their distribution. Baseline characteristics such as gender, age, nationality, occupation are described in number and percentages for categorical variables, and median and interquartile range for continuous variables. The level of significance is set at p<0.05.

3. Results

3.1 Demographic background

A total of 226 subjects participated in the survey, with an average age of 31 years (standard deviation of 13 years) and an equal male-to-female ratio of 1:1. Most participants were single (57.5%), followed by married (41.0%), and divorced or separated (1.5%). The occupational distribution was as follows: students (37.2%), farmers (24.1%), employees (22.2%), medical staff (4.5%), teachers (3.4%), housewives (3.4%), police (1.5%), and others (3.8%). Regarding the number of children, 59.8% had none, 5.3% had one child, 28.2% had two to five children, and 6.8% had more than four children. Educational levels among participants were: university education (68%), high school (17.3%), no formal education (11.7%), and secondary school (3%). The respondents' residences were distributed between the provinces (60.5%) and Phnom Penh (39.5%). See Table 1.

Table 1: Demographic data of respondents

Parameter	Frequency	Percent (%)
Gender		
Male	131	49.2
Female	135	50.8
Age group (years)	31 ($\pm$13) †	
16-29	160	60.2
30-49	73	27.4
>49	33	12.4
Marital Status		
Single	153	57.5
Married	109	41.0
Divorced	4	1.5
Occupation		
Student	99	37.2
Farmer	64	24.1
Police	4	1.5
Housewife	9	3.4
Medical staff	12	4.5
Teacher	9	3.4
Employee	59	22.2
Other	10	3.8
No. of children		
0	159	59.8
1	14	5.3
2-5	75	28.2
$\geq$5	18	6.8
Level of Education		
No study	31	11.7
Primary school	0	0.0
Secondary school	8	3.0
High school	46	17.3
University	181	68
Address		
Phnom Penh	105	39.5
Provinces	161	60.5

†Mean (Standard Deviation)
Others: Buddhist monk, vender

3.2 Awareness of Epilepsy

The responses to questions related to familiarity with epilepsy are listed in Table 3. 73.3% of respondents had read about or heard of epilepsy, 55.6% knew someone who had epilepsy, and 55.6% had seen someone having a seizure. People older than 30 years, people with lower education and living in provinces tended to have a better awareness of epilepsy. Gender, age group, and marital status were not statistically associated with the familiarity of epilepsy. Medical staff, farmers and students were more familiar with epilepsy than others among the nature of job.

Table 3: Awareness towards epilepsy

Parameter	No. of response (%)	Q1		Q2		Q3	
	266	Yes%	No%	Yes%	No%	Yes%	No%
Total		73.3	26.7	55.6	44.4	55.6	44.4
Gender							
Male	131 (49.2)	76.3	23.7	58.8	41.2	26	74
Female	135 (50.8)	70.4	29.6	52.6	47.4	14.1	85.9
Age group (years)							
16-29	160 (60.2)	71.9	28.1	48.1	51.9	56.3	43.8
30-49	73 (27.4)	75.3	24.7	67.1	32.9	53.4	46.6
>49	33 (12.4)	75.8	24.2	66.7	33.3	57.6	42.4
Marital Status							
Single	153 (57.5)	75.2	24.8	49	51	58.2	41.8
Married	109 (41.0)	72.5	27.5	65.1	34.9	52.3	47.7
Divorced	4 (1.5)	75	25	50	50	50	50
Occupation							
Student	99 (37.2)	73.7	26.3	43.4	56.6	52.5	47.5
Farmer	64 (24.1)	75	25	62.5	37.5	51.6	48.4
Police	4 (1.5)	50	50	75	25	100	0
Housewife	9 (3.4)	44.4	55.6	33.3	66.7	44.4	55.6
Medical staff	12 (4.5)	100	0	91.7	8.3	91.7	8.3
Teacher	9 (3.4)	66.7	33.3	66.7	33.3	66.7	33.3

Employee	59 (22.2)	67.8	32.2	61	39	52.5	47.5
Other	10 (3.8)	100	0	60	40	70	30
No. of children							
0	159 (59.8)	74.8	25.2	49.1	50.9	57.9	42.1
1	14 (5.3)	57.1	42.9	64.3	35.7	50	50
2-5	75 (28.2)	74.7	25.3	66.7	33.3	57.3	42.7
≥5	18 (6.8)	66.7	33.3	61.1	38.9	33.3	66.7
Education							
No study	31 (11.7)	77.4	22.6	74.2	25.8	61.3	38.7
Primary school	0 (0.0)	0	0	0	0	0	0
Secondary school	8 (3.0)	75	25	50	50	50	50
High school	46 (17.3)	67.4	32.6	54.3	45.7	50	50
University	181 (68)	74	26	53	47	56.4	43.6
Address							
Phnom Penh	105 (29.5)	70.8	29.2	53.3	46.7	57.1	42.9
Provinces	161 (60.5)	77.1	22.9	57.1	42.9	54.7	45.3

Three questions were asked: Q1 Have you ever heard about Epilepsy? Q2 Did you ever know anyone had epilepsy? Q3 Have you ever seen anyone having a seizure?

3.3 Attitude Towards Epilepsy

The responses to questions related to attitude toward epilepsy are listed in Table 2. 19.9% of respondents objected to have their children associating with epileptic persons in school or at play. This negative attitude was significantly associated with people in provinces. 51.5% of respondents objected to their children marrying a person who sometimes have seizure. This attitude was prevalent in all population groups although younger age group had significantly less negative attitude but it was significantly higher in farmers and people with lower education. 51.5% held the view that epileptic persons should not be employed in jobs as other persons are. The negative attitude was significantly associated with older age, living in provinces, being divorced, farmers and lower education. 55.6% of the respondents still objected to employing an epilepsy sufferer even though the seizure did not interfere with his job. There were 6% of the respondents believed that epilepsy was a form of insanity. This attitude was prevalent in all population groups. There were 81.6% of respondents objected to get married with epileptic people. This negative attitude was prevalent in all groups of respondents but teacher group and those being divorced were associated with this negative attitude. There were 25.9% remained thinking that the society discriminated against persons with epilepsy and 54.5% of epilepsy would affect education of a person.

Table 3: Attitude towards epilepsy (continued)

Parameter	No. of response (%)	Q4		Q5		Q6		Q7	
	266	Yes %	No%	Yes %	No%	Yes%	No%	Yes%	No%
Total		19.9	80.1	48.5	51.5	44.4	55.6	6	94
Gender									
Male	131 (49.2)	26	74	51.1	48.9	40.5	59.5	5.3	94.7
Female	135 (50.8)	14.1	85.9	45.9	54.1	48.1	51.9	6.7	93.3
Age group (years)									
16-29	160 (60.2)	16.9	83.1	55	45	50	50	3.8	96.2
30-49	73 (27.4)	24.7	75.3	47.9	52.1	39.7	60.3	13.7	86.3
>49	33 (12.4)	24.2	75.8	18.2	81.8	27.3	72.7	0	100
Marital Status									
Single	153 (57.5)	15.7	84.3	54.2	45.8	51	49	20.3	79.7
Married	109 (41.0)	25.7	74.3	41.3	58.7	36.7	63.3	16.5	83.5
Divorced	4 (1.5)	25	75	25	75	0	100	0	100
Occupation									
Student	99 (37.2)	13.1	86.9	56.6	43.4	48.5	51.5	1	99
Farmer	64 (24.1)	21.9	78.1	31.3	68.8	37.5	62.5	4.7	95.3
Police	4 (1.5)	0	100	50	50	25	75	25	75
Housewife	9 (3.4)	33.3	66.7	44.4	55.6	55.6	44.4	0	100
Medical staff	12 (4.5)	16.7	83.3	66.7	33.3	66.7	33.3	0	100
Teacher	9 (3.4)	33.3	66.7	77.8	22.2	33.3	66.7	0	100
Employee	59 (22.2)	25.4	74.6	47.5	52.5	39	61	16.9	83.1
Other	10 (3.8)	30	70	40	60	60	40	10	90
No. of children									
0	159 (59.8)	15.7	84.3	54.7	45.3	51.6	48.4	3.8	96.2
1	14 (5.3)	35.7	64.3	50	50	28.6	71.4	7.1	92.9
2-5	75 (28.2)	28	72	43.7	57.3	37.3	62.7	12	88
≥5	18 (6.8)	11.1	88.9	16.7	83.3	22.2	77.8	0	100
Education									
No study	31 (11.7)	16.1	83.9	16.1	83.9	32.3	67.7	0	100
Primary school	0 (0.0)	0	0	0	0	0	0	0	0
Secondary school	8 (3.0)	50	50	37.5	62.5	37.5	62.5	25	75

High school	46 (17.3)	28.3	71.7	39.1	60.9	45.7	54.3	10.9	89.1
University	181 (68)	17.1	82.9	56.9	43.1	46.4	53.6	5	95
Address									
Phnom Penh	105 (29.5)	18.1	81.9	54.3	45.7	48.6	51.4	5.7	94.3
Provinces	161 (60.5)	21.1	78.9	44.7	55.3	41.6	58.4	6.2	93.8

Seven questions were asked: Q4 Would you object to having any of your children in school or at play associate with a person who sometimes had seizures (fits)? Q5 Would you object to having a son or daughter of yours marrying a person who sometimes had seizures? Q6 Do you think people with epilepsy should or should not be employed in jobs like other people? Q7 Do you think epilepsy is a form of insanity or not?

Table 3: Attitude towards epilepsy (continued)

Parameter	No. of response (%)	Q8		Q9		Q10	
	266	Yes%	No%	Yes%	No%	Yes%	No%
Total		18.4	81.6	25.9	74.1	54.5	45.5
Gender							
Male	131 (49.2)	17.6	82.4	23.7	76.3	55	45
Female	135 (50.8)	19.3	80.7	28.1	71.9	54.1	45.9
Age group (years)							
16-29	160 (60.2)	18.8	81.2	27.5	72.5	53.8	46.2
30-49	73 (27.4)	17.8	82.2	20.5	79.5	60.3	39.7
>49	33 (12.4)	18.2	81.8	30.3	69.7	45.5	54.5
Marital Status							
Single	153 (57.5)	20.3	79.7	30.1	69.9	54.2	45.8
Married	109 (41.0)	16.5	83.5	21.1	78.9	56	44
Divorced	4 (1.5)	0	100	0	100	25	75
Occupation							
Student	99 (37.2)	16.2	83.8	26.3	73.3	56.6	43.4
Farmer	64 (24.1)	18.8	81.3	15.6	84.4	39.1	60.9
Police	4 (1.5)	25	75	0	100	50	50
Housewife	9 (3.4)	33.3	66.7	66.7	33.3	55.6	44.4
Medical staff	12 (4.5)	16.7	83.3	58.3	41.7	91.7	8.3
Teacher	9 (3.4)	0	100	33.3	66.7	77.8	22.2
Employee	59 (22.2)	20.3	79.7	23.7	76.3	50.8	49.2
Other	10 (3.8)	30	70	30	70	90	10
No. of children							
0	159 (59.8)	20.8	79.2	29.6	70.4	54.7	45.3
1	14 (5.3)	14.3	85.7	21.4	78.6	35.7	64.3
2-5	75 (28.2)	16	84	17.3	82.7	61.3	38.7
≥5	18 (6.8)	11.1	88.9	33.3	66.7	38.9	61.1
Education							
No study	31 (11.7)	12.9	87.1	32.3	67.7	38.7	61.3
Primary school	0 (0.0)	0	0	0	0	0	0
Secondary school	8 (3.0)	37.5	62.5	62.5	37.5	62.5	37.5
High school	46 (17.3)	28.3	71.7	6.5	93.5	50	50
University	181 (68)	16	84	28.2	71.8	58	42
Address							
Phnom Penh	105 (29.5)	21.9	78.1	30.5	69.5	60	40
Provinces	161 (60.5)	16.1	83.9	23	77	50.9	49.1

Q8 Would you marry someone who has epilepsy? Q9 Do you think society discriminates against persons with epilepsy? Q10 Does epilepsy affects the education of a person?

3.4 Understanding of Epilepsy

The understanding of epilepsy elicited here were the cause, manifestations, treatment and activities permissible for persons with epilepsy. Table 4 lists the clinical manifestations of epileptic seizure. As for clinical manifestation of epilepsy, 2.3% did not know what an epileptic attack was like. 75.6% considered convulsion and shaking movements and 13.2% chose transient changes of behavior as a typical manifestation of an epileptic attack. Only 5.6% considered loss of consciousness. Table 5 lists the responses to question on treatment to suggest if their friends or relatives had epilepsy. There were 96.2% of respondents asked for a medical doctor, 1.9% for herbal medicine and only 1.5% don't know what to

recommend. Table 6 lists the responses to question on the cause of epilepsy. There were 5.2% of respondents did not know the cause of epilepsy, 21.3% were not familiar with epilepsy. 60.6% believed epilepsy caused by brain disease, disorder and injury while other 4.3% believed that it caused by birth defect, 5.6% hereditary (inherited disease), 1.9% mental or emotional stress or disorder and 1.1% believed that this caused by contagious disease. Table 7 lists the responses to question on treatment to suggest if their friends or relatives had epilepsy. As for treatment of epilepsy, 0.8% kept at home and 99.2% believed that epilepsy should be treated by a medical doctor. No one chose pagoda and traditional therapy as an option to treatment. Table 8 lists the responses to question on safety of driving for epilepsy. There were 91% of

respondents believed that driving is not safe for epilepsy and 9% believed that it was safe.

Table 4: Responses to the question "What do you think an epileptic attack is?"

Responses	Percentage positive
Convulsions, shaking	75.6
Loss of consciousness	3.4
Transient changes of behavior	13.2
Period of amnesia	5.6
Don't know	2.3

Table 5: Responses to the question "If your relatives or friends have epilepsy, what kind of treatment would you suggest?"

Responses	Percentage positive
Ask for a medical doctor	96.2
Herbal medicine	1.9
Don't know what to recommend	0.4
Think epilepsy is untreatable	1.5
Acupuncture	0
Not need to treat	0
Ask for God's Help	0
Ask for the Buddhist Monk	0

Table 6: Responses to the question "What do you think is the cause of Epilepsy?"

Responses	Percentage positive
Don't know	5.2
Hereditary, inherited disease	5.6
Birth defect	4.3
Contagious disease	1.1
Brain disease, disorder, injury	60.6
Mental or emotional stress, disorder	1.9
Blood, Blood disorder	0
Insanity	0
Not familiar with epilepsy	21.3

Table 7: Responses to the question "If you happen to see a person having an epileptic seizure, where would you take him?"

Responses	Percentage positive
Hospital	99.2
Pagoda	0
Traditional therapist	0
Keep at home	0.8

Table 8: Responses to the question "Are people with epilepsy safe to drive?"

Responses	Percentage positive
YES	9
NO	91

4. Discussion

Our study involved public participants and is comparable to similar studies conducted in Malaysia, Thailand, Taiwan, Myanmar, China, and Singapore. Notably, some of these studies targeted school teachers [5] and patients [6]. However, significant demographic differences were observed. Our participants were generally younger than those in studies from China [7], Taiwan [8], Malaysia [9], and Singapore [10]. We also had a higher proportion of respondents with higher education and more female participants compared to Chinese and Malaysian studies. Factors such as age, education level, and gender significantly influenced questionnaire responses.

Regarding administration methods, studies in China, Taiwan, and Malaysia collected data in streets, parks, markets, and via door-to-door visits, with questionnaires completed by physicians and medical students. The Singapore study involved self-filled questionnaires at a health fair [10]. Our study administered questionnaires to in-patients and out-patients at a hospital, with responses recorded by physicians and medical students.

Our study showed that 73.3% of respondents were aware of epilepsy, which is lower than the awareness rates reported in Singapore (85%), Taiwan (87%), China (93%), and Malaysia (99%) [7-10]. Awareness was higher among males, medical professionals, and those with lower education, with no significant association with age or marital status. Additionally, 56.6% had seen someone with epilepsy and 56.6% knew someone with epilepsy, particularly among those who had never attended school. The higher prevalence of witnessing seizures and knowing someone with epilepsy may be related to overpopulation and social stigma.

Attitudes toward epilepsy in our study are less negative compared to those in China and Taiwan, but similar to those in Malaysia and Singapore. Key findings include 55.6% of respondents objected to employing people with epilepsy, even if seizures didn't interfere with the job. 81.6% objected to marrying someone with epilepsy, with teachers and divorced individuals being less negative. 25.9% perceived societal discrimination against people with epilepsy. 54.5% believed epilepsy affects education. The more favorable attitudes in Malaysia could be due to greater Western influence and socioeconomic openness.

Regarding understanding epilepsy, our respondents demonstrated better knowledge compared to other Asian studies [7-10]. Specifically, 60.6% attributed epilepsy to a brain disorder, 75.6% identified convulsions and shaking movements as typical symptoms, and 13.2% recognized transient behavioral changes. Only 5.6% considered loss of consciousness. Consistent with other surveys in Asia, awareness of non-convulsive epilepsy was low. On treatment recommendations, our respondents' answers were more favorable compared to other Asian studies. About 96.2% recommended seeking a medical doctor, and 99.2% believed epilepsy should be treated in a hospital. None suggested pagoda or traditional therapies. Regarding driving safety, 91% of respondents considered it unsafe for people with epilepsy to drive.

5. Conclusion

Public knowledge, awareness, and attitudes toward epilepsy were generally satisfactory in this study. While most respondents were aware of epilepsy, many still held negative attitudes toward individuals with the condition, despite a good understanding of its causes and treatments. Epilepsy awareness campaigns are needed to overcome public misconceptions and barriers faced by individuals with epilepsy in Cambodia. Misunderstandings, negative attitudes, and prejudice contribute to the stigma and discrimination perceived by patients.

Ethical considerations
This study was conducted with approval from the Khmer Soviet Friendship Hospital. Participants were consented at the beginning of the survey; it was mentioned to be totally voluntary, confidential and the right to withdraw at any time. All responses were recorded anonymous. Following the survey process, participants were asked for voluntary verbal informed consent for participation in the study and filled in the questionnaire as an agreement.

Conflict of interest statement
All authors disclose no conflict of interest related to this submission.

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Author Profile

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