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# Exploring knowledge, attitude, and practices in relation to epilepsy among undergraduates for effective health promotion: Initial evaluation

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## Abstract:

**BACKGROUND:** The condition of epilepsy has a considerable effect on a person's social and personal life. Currently, a knowledge gap exists regarding the knowledge, attitude, and perception towards epilepsy among graduate students. The objectives of the study were to initially explore the knowledge, attitude, practices and to examine their inter-relationship among graduate students.

**MATERIALS AND METHODS:** A total of 300 3<sup>rd</sup> year Bachelor of Science graduate students from colleges near Hombegowda nagar, Bangalore, Karnataka were included from three colleges. To achieve the objective mentioned, an instrument was framed and approved by specialists in the field.

**RESULTS:** About 26% believed that epilepsy is a mental illness, 64% reported that it is not a disease of the brain, 96% believed it to be a hereditary disease. Attitude shows that 29%, 33%, and 49% believed that Epilepsy can disturb anybody's normal life, education, and occupation, respectively. About 31% reported that if they see a person with epileptic attack they ran away. Knowledge score have significantly ( $P < 0.001$ ) positive correlation of  $r = 0.810$  and  $r = 0.794$  with both attitude and practice, respectively. Attitude and practice also have significantly ( $P < 0.001$ ) positive correlation (0.856) with practice. This clearly shows that if knowledge increases, persons will have positive attitude and good practices whereas less knowledge leads to faulty attitude and practices.

**CONCLUSIONS:** There is a need to include health education programs for school children and college students irrespective of streams, as it is crucial to bring an alteration in the presently observed perspective, behavior, and practice.

## Keywords:

Attitude, epilepsy, graduate students, knowledge, practices

## Introduction

Epilepsy is a neurological disorder which disturbs the normal brain activity due to the irregular and excessive cerebral neurons' discharge. This results in loss of consciousness and sensation.<sup>[1,2]</sup> Around 80% of the patients with epilepsy hail from the developing countries, and it happens to be one of the major health problems due to various cultural, psychological, social,

and economic consequences along with its associated health effects.<sup>[2-4]</sup> Developed countries have come quite forward with explanations with respect to epilepsy, as compared to the developing countries where information still lack scientific basis due to the ongoing prejudice and stigma that has led to false beliefs among the general population.<sup>[5,6]</sup> Epilepsy though clinically curable has an adverse effect on the social identity of the patients due to wrong belief that people among many cultures hold on to, with respect to epilepsy. Thus, it is

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important to understand the process and concept of stigmatization related to epilepsy.

Myths and misapprehension continue to exist even though attitude and knowledge have seemed to improve comparatively in many countries. Studies among various cultures in developing countries show beliefs like epilepsy is a form of mental retardation or is contagious.<sup>[7,8]</sup> Along with this, what promotes such form of misconception and thought that epilepsy cannot be cured is the lack of knowledge of how to handle a patient during an epileptic seizure among common people.<sup>[9-11]</sup>

In a study by Limotai *et al.*, on a survey conducted on the school children of Bangkok, exploring the knowledge, attitude, and practices (KAPs), it was seen that there exists quite a lot of misunderstandings regarding the disorder and an immediate need to educate the children about the same is required.<sup>[12]</sup>

As discussed, there are studies conducted among other population, whereas there are no studies conducted among the science graduates. The KAP among science undergraduates need to be studied to authenticate them. The general perception is that since they are studying science, their KAP toward epilepsy would be different from normal population. Hence, the present study made an attempt to study the KAPs among them and see the relationship.

## Materials and Methods

### Research design

A descriptive cross-sectional design was followed in the present study with a pool of 300 students from the stream of Bachelor of Science from colleges selected randomly from one educational block.

### Ethical considerations

The study was accepted by institutional ethics committee. Authorized consent was taken from the principals in the colleges to go on with the research study. Written consent from participants was obtained to participate in the study.

### Study procedure

This study was a preliminary step to evaluate the KAPs among college students with respect to epilepsy. As a part of this initial evaluation, a small sample size was selected from science stream with an estimation that the anatomy and neurology of the human body are well covered in their syllabus; so, they might have a basic idea of the disorder. The objective of this study was the assessment among science undergraduates, about their understanding, perspective, and customs

in relation to the KAP variables. A total of 300 3<sup>rd</sup> year Bachelor of Science students were included from three colleges from Hombegowda nagar, Bangalore. In accordance with the literature review and review with the clinicians who are specialists of epilepsy, an assessment tool to measure the KAPs was framed. This tool was further validated by individuals who were chosen as experts for approval. The finally approved tool had 14 items in knowledge, 17 items in attitude, and 18 items in practice domains. Each item had Likert type of five options ranging from strong agreement to disagreement. Some items in each domain had negative statements.

### Data analysis

Each domain's score was calculated summing up the options. The data were collected through questionnaire method, and International Business Machines Corporation SPSS Statistics version 20 IBM SPSS was used for the analysis of the same.

## Results

Table 1 describes knowledge level about epilepsy among respondents. About 26% of the respondents did not know that epilepsy is not a mental illness, 64% said that epilepsy is not a brain disease, 96% reported that epilepsy is a genetic disease and is carried on through generations, 38% said it is caused due to sins committed by ancestors or one's own sins in past life, 25% said epilepsy causes due to touching the epileptic person, 30% reported allopathic treatment is not beneficial in curing epilepsy, half of the respondents (52%) said that most people suffering from epilepsy should undergo lifelong treatment for the same, 29% felt that it is not harmful to miss one dose of medications once or twice for people with the condition, 31% felt epilepsy medicines cause minimal side effects, 22% felt a person suffering from epilepsy is possessed with evil spirits, 28% felt tying a black thread after visiting a temple is used to treat persons with epilepsy, 36% felt medicines can be stopped after a period of 3 years from last seizure, and 26% felt epilepsy is always manifested by shaking of hands and legs.

Table 2 describes the attitude of the respondents. About 29% had wrong attitude that epilepsy causes disturbances in leading a happy life, 33% reported that it is not easy for persons with epilepsy to get job, 49% reported that person with epilepsy has difficulty to continue his education, 34% felt one should not sit next to a person suffering with epilepsy, 29% agreed that spending time in recreational activities with a person having epilepsy should be avoided, 36% said that one should avoid sharing possessions with someone having epilepsy, 58% have a feeling that people with epilepsy should leave the

**Table 1: Level of knowledge of respondents on epilepsy (n=300)**

Item number	Items	Strongly agree, n (%)	Agree, n (%)	Undecided, n (%)	Disagree, n (%)	Strongly disagree, n (%)
1	Epilepsy is a kind of mental illness	79 (26.4)	0	0	136 (45.3)	85 (28.3)
2	Epilepsy is not a disease of the brain	70 (23.3)	122 (40.7)	47 (15.7)	61 (20.3)	0
3	Epilepsy is genetic disease and is carried on through generations	3 (1)	287 (95.7)	1 (0.3)	6 (2.0)	3 (1)
4	Epilepsy is caused by sins committed by ancestors or due to ones' own sins in previous Janma (janam)	35 (11.7)	80 (26.7)	36 (12)	107 (35.7)	42 (14)
5	Epilepsy does not cause by coming in contact with a person having the same	83 (27.7)	113 (37.7)	28 (9.3)	32 (10.7)	44 (14.7)
6	Allopathic treatment is beneficial in curing epilepsy	96 (32)	59 (19.7)	56 (18.7)	57 (19)	32 (10.7)
7	People affected with epilepsy have to undergo treatment throughout their life	96 (32)	60 (20)	76 (25.3)	38 (12.7)	30 (10)
8	Missing doses of medication seldom or once in some time is dangerous for people having the disease	74 (24.7)	102 (34)	36 (12)	43 (14.3)	45 (15)
9	Epilepsy medicines cause minimal side effects	119 (39.7)	68 (22.7)	26 (8.7)	30 (10)	57 (19)
10	Epilepsy is easy to cure	50 (16.7)	107 (35.7)	21 (7)	98 (32.7)	24 (8)
11	A person suffering from epilepsy is possessed with evil spirits	35 (11.7)	32 (10.7)	46 (15.3)	113 (37.7)	74 (24.7)
12	Tying a black thread after visiting a temple is used to treat persons with epilepsy	39 (13)	46 (15.3)	26 (8.7)	97 (32.3)	92 (30.7)
13	Medicines can be stopped after a period of three years from last seizure	50 (16.7)	57 (19)	15 (5)	93 (31)	85 (28.3)
14	Epilepsy is always manifested by shaking of hands and legs	41 (13.7)	36 (12)	41 (13.7)	90 (30)	92 (30.7)

**Table 2: Attitude levels of respondents on epilepsy (n=300)**

Item number	Items	Strongly agree, n (%)	Agree, n (%)	Undecided, n (%)	Strongly disagree, n (%)	Disagree, n (%)
1	Epilepsy causes disturbances to lead a happy life	32 (10.7)	55 (18.3)	49 (16.3)	83 (27.7)	81 (27)
2	It's easy for persons with epilepsy to get a job	54 (18)	117 (39)	31 (10.3)	66 (22)	32 (10.7)
3	A person with epilepsy has difficulty in continuing his education	56 (18.7)	91 (30.3)	37 (12.3)	75 (25)	41 (13.7)
4	One can sit next to a person suffering with epilepsy	85 (28.3)	89 (29.7)	24 (8)	53 (17.7)	49 (16.3)
5	One should avoid involving in recreational activities with person having the disease.	79 (26.3)	7 (2.3)	3 (1)	129 (43)	82 (27.3)
6	One should avoid sharing stationeries with a person having epilepsy	47 (15.7)	60 (20)	39 (13)	80 (26.7)	74 (24.7)
7	Persons with epilepsy should leave the village/town and go	65 (21.7)	109 (36.3)	43 (14.3)	72 (24)	11 (3.7)
8	Society treats people with epilepsy with compassion	80 (26.7)	72 (24)	31 (10.3)	85 (28.3)	32 (10.7)
9	Children with epilepsy can go to school	72 (24)	88 (29.3)	41 (13.7)	75 (25)	24 (8)
10	Children with epilepsy should be sent to alternative/compensatory schools	52 (17.3)	51 (17)	24 (8)	88 (29.3)	85 (28.3)
11	Children with epilepsy have appropriate level of intelligence	52 (17.3)	114 (38)	34 (11.3)	65 (21.7)	35 (11.7)
12	Children with epilepsy can be a part of outdoor games	83 (27.7)	107 (35.7)	31 (10.3)	33 (11)	46 (15.3)
13	People with epilepsy should keep their condition secret	42 (14)	44 (14.7)	35 (11.7)	110 (36.7)	69 (23)
14	People with epilepsy can get married	52 (17.3)	113 (37.3)	33 (10)	65 (21.7)	37 (12.3)
15	Persons with epilepsy can have children	94 (31.3)	60 (20)	76 (25.3)	40 (13.3)	30 (10)
16	Persons with epilepsy should be given lower wages at work	33 (11)	54 (18)	50 (16.7)	82 (27.3)	81 (27)
17	Persons with epilepsy can be successful in life	11 (3.7)	72 (24)	43 (14.3)	109 (36.3)	65 (21.7)

village/ town and go, 39% felt that society does not treat people with epilepsy with compassion, 28% reported that children with epilepsy cannot go to school, 34% felt that kids having epilepsy should be sent to alternative or compensatory schools, 33% felt kids having epilepsy

have appropriate level of intelligence, 26% felt kids having epilepsy cannot be a part of outdoor games, 25% felt people with epilepsy should keep their condition secret, 34% reported that people with epilepsy cannot get married, 23% felt persons with epilepsy cannot have

children, 29% feel persons with epilepsy should be given lower wages at work, and 58% felt persons with epilepsy cannot achieve great success in life.

Table 3 describes the various practices of the respondents. About 31%, 34%, 34%, and 58% of the respondents believed that one has to run away when he/she sees a person to be attacked by an episode of seizure, the person having seizure does not need to be taken to the hospital, the person should be made to hold a key bunch, and water should be sprinkled over the person's face while he/she is having an epileptic attack, respectively. About 30% agreed that artificial respiration (mouth-to-mouth resuscitation) should be given to a person who is having an epileptic attack. About 63%, 34%, 39%, 25%, and 31% reported that during an epileptic attack, it is okay to hold the person tightly, try to pull his/her tongue out, a spoon should be tried to be placed between their teeth, and not to remove any objects near the person and position the person safely. About one fourth and half of the respondents did not agree that one has to wait

silently for the seizure to end on its own and to take the help of nearby people when one sees a person having an epileptic attack and give him first aid, respectively. About 23% believed that one needs to make the person smell a shoe while he is having a seizure, 29% said that we have to keep a piece of cloth in the mouth of the person during an attack of epileptic seizure to prevent a tongue bite and 29% reported that we have to take the person to a temple/mosque/church after he or she has a seizure.

Table 4 describes the categorization of KAPs on epilepsy. All the right answers were summed up; total scores were obtained and categorized as low, medium, and high level. In the knowledge domain, minimum score is 14 and maximum is 70. This was further categorized as up to medium level (28–43) and adequate level (44 and above). In the attitude domain, minimum score is 17 and maximum is 85. This was further classified as up to medium level of attitude (31–53) and adequate level of attitude (54 and above). In the practice domain,

**Table 3: Practices of respondents on epilepsy (n=300)**

Item number	Items	Strongly agree, n (%)	Agree, n (%)	Undecided, n (%)	Strongly disagree, n (%)	Disagree, n (%)
1	We have to make a quick exit when a person is having an epileptic attack	34 (11.3)	66 (22)	34 (11.3)	112 (37.3)	54 (18)
2	The person having seizure should be taken to the hospital	52 (17.3)	112 (37.3)	34 (11.3)	64 (21.3)	38 (12.7)
3	The person having the attack should be made to hold a key bunch.	52 (17.3)	51 (17)	25 (8.3)	87 (29)	85 (28.3)
4	Water should be sprinkled over the face of a person having seizure.	65 (21.7)	108 (36)	43 (14.3)	74 (24.7)	10 (3.3)
5	The person having an epileptic attack should be provided with artificial respiration through mouth to mouth resuscitation	46 (15.3)	43 (14.3)	36 (12)	102 (34)	73 (24.3)
6	We have to try feeding the person having epilepsy	40 (13.3)	37 (12.3)	42 (14)	89 (29.7)	92 (30.7)
7	We have to immediately reach out the person's family members to inform them about the episode	87 (29)	134 (44.7)	1 (0.3)	1 (0.3)	77 (25.7)
8	The person having epileptic seizure should be held tightly	71 (23.7)	118 (39.3)	48 (16)	62 (20.7)	1 (0.3)
9	We have to try to pull the tongue out during epileptic attack	39 (13)	62 (20.7)	35 (11.7)	110 (36.7)	54 (18)
10	A spoon should be put in between the teeth of a person having an episode of seizure	34 (11.3)	82 (27.3)	40 (13.3)	105 (35)	39 (13)
11	Any object lying around a person having an epileptic attack should be removed immediately.	84 (28)	111 (37)	30 (10)	32 (10.7)	43 (14.3)
12	We have to position the person safely during an epileptic attack	95 (31.7)	54 (18)	59 (19.7)	58 (19.3)	34 (11.3)
13	We have to remove the clothes of the person if it has been soiled.	55 (18.3)	113 (37.3)	33 (11)	63 (21)	36 (12)
14	We have to wait silently for the seizure to end on its own	84 (28)	111 (37)	30 (10)	31 (10.3)	44 (14.7)
15	We have to take the help of nearby people when we see a person having an epileptic attack and give him first aid	33 (11)	57 (19)	57 (19)	59 (19.7)	94 (31.3)
16	The person should be made to smell a shoe when he has an attack of seizure	31 (10.3)	38 (12.7)	77 (25.7)	60 (20)	94 (31.3)
17	A piece of cloth should be put in the person's mouth during an episode of seizure to prevent tongue	45 (15)	42 (14)	37 (12.3)	102 (34)	74 (24.7)
18	We have to take the person to a temple/mosque/church after he or she has a seizure	56 (18.7)	30 (10)	26 (8.7)	69 (23)	119 (39.7)

minimum score is 18 and maximum 90. This was further categorized as up to medium level of practice (42–60) and adequate level of practice (61 and above).

It clearly shows that 68% had medium level of knowledge and only 32% had adequate level of knowledge. Attitude of the respondent's shows that 42% had adequate level and 58% had medium level of attitude. Practices show that 54% had medium level and 46% had adequate level of practices.

Table 5 describes the Pearson's correlation coefficient among KAP skills of the respondents. It clearly reveals that knowledge was positively correlated with attitude ( $r = 0.810, P < 0.001$ ), and knowledge is also having correlation between practice ( $r = 0.794, P < 0.001$ ). The practice is having correlation between knowledge and attitude ( $r = 0.856, P < 0.001$ ). This clearly shows that if knowledge increases, person will have positive attitude and good practice, whereas, less knowledge leads to faulty attitude and practices.

### Discussion

In the present study, an attempt was made to evaluate the KAP of epilepsy in Bangalore city among science students considering the fact that the anatomy of humans are taught in their curriculum. The study clearly puts forth the evidence that students from the science department have inadequate knowledge with regard to epilepsy. Thus, there is an immediate need to educate all college students irrespective of their streams about the disorder. The research also highlights that poor knowledge has led the students to have a poor attitude and practices with regard to person suffering from epilepsy. Most of their beliefs were confounded with the representations of the illness as depicted in movies and in media. The traditional belief is that epilepsy is caused by the possession of evil spirits and is not a medical illness. Interestingly, the majority of the students opined the same. This could probably be due to the poor exposure in terms of education

**Table 4: Level of knowledge, attitude, and practices of epilepsy**

Category	Knowledge, n (%)	Attitude, n (%)	Practices, n (%)
Up to medium level	204 (68.0)	175 (58.3)	161 (53.7)
Adequate level	96 (32)	125 (41.7)	139 (46.3)

$\chi^2=13.36, P=0.001$

**Table 5: Pearson's correlation coefficients between knowledge, attitude, and practice (n=300)**

Variable	Knowledge	Attitude
Attitude	0.810	
Practice	0.794	0.856

All r values are significant ( $P < 0.001$ )

received on epilepsy. A study reported that for effective management of epilepsy, knowledge on epilepsy and patient supportive attitude and practices are very important.<sup>[13]</sup> This findings support the studies done at Jordan in 2014, where the significant number of pupils believe that evil spirits/evil eye causes epilepsy. They were of the opinion that God's punishment can also be manifested in the form of epilepsy.<sup>[14]</sup> The study findings corroborate with Goel *et al.* study<sup>[15]</sup> which was conducted among 177 students and reported that many of the them had an idea that sins committed in the past is one of the causes of epilepsy and this effects their education achievement.

The knowledge for providing first aid during a seizure episode is very poor among the respondents. The students reported running away and helplessness in handling a person whenever a person has a seizure. They clearly lack the awareness in providing first aid during an epileptic attack. Owing to poor education or lack of information on epilepsy during the growing school period and cultural theories behind the management of epilepsy, it could be stated that the students studying science reported their views based on their cultural observations and media portrayal.

Practices show that about one-third of respondents feel one has to run away when he/she sees a person having an episode of seizure, to make the person hold a key bunch during an epileptic seizure, and that the person need not be taken to the hospital during this time. This clearly shows that they have wrong practices that need to be addressed. Since they are from science stream, it is expected that they need to have adequate practices. There is a need to work with this population as well. Studies conducted with student population clearly shows that students lack KAPs.<sup>[10-12]</sup> A study conducted in Nepal among high school students also show that there is a need of proper educational intervention for reducing the stigma related to the disorder.<sup>[16]</sup>

Pearson's correlation coefficient among KAP skills of the respondents reveal that a positive correlation exists between knowledge and attitude ( $r = 0.810, P < 0.01$ ) and knowledge with practice ( $r = 0.794, P < 0.01$ ). Practice is having a correlation between knowledge and attitude ( $r = 0.856, P < 0.01$ ). This clearly shows that if knowledge increases, the person will have positive attitude and good practice whereas less knowledge leads to faulty attitude and practices. Studies corroborate with the present study.<sup>[10-12,15,17]</sup>

### Conclusions

Education plays a major role in removing the myths and misconceptions in any illness. This is true in a

disorder like epilepsy which is grappling in a cultural chaos in India. A student studying science needs to be equipped with minimum knowledge in their academic curriculum, but epilepsy has not found a place yet in the student's curriculum. Knowledge about the disorder is important to be imparted among all students irrespective of their stream. This would also help him or her in having an empathetic attitude toward their peers who are undergoing the social consequences of the disorder. Moreover, the inclusion in the curriculum will empower the students, and in turn, the community will be benefitted. This void in the education system has risen to the prevailing myths and misconceptions that our society is bogged down with. Preconceived notions with regard to this illness among the students also need to be considered for intervention. This calls aloud for educators, public health professionals, and mental health professionals to impart education as an important tool for fighting stigma. Nevertheless, the magnitude of awareness, education, and fighting stigma will continue.

### Providing limitation and based on practical suggestion

This study was an initial step to assess the KAP among a small sample. The study has the limitation of including a small sample of only science undergraduates. Based on this study, future studies can be done with a larger sample size of students from various streams of study.

### Providing acknowledgment and ethical code

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### Conflicts of interest

There are no conflicts of interest.

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