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**Original Research Article**

# Knowledge, attitude, and practices towards epilepsy among university students in South India

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## ABSTRACT

**Background:** Epilepsy is one of the common chronic neurological problem affecting people of all ages. Ironically it is also associated with much stigma attached to it. Knowledge about the disease is essential to dispel the myths and misbeliefs. The objective of this study were to evaluate the awareness on epilepsy among the students in a private university and to compare the levels of awareness between health and non-health care students.
**Methods:** A self-administered questionnaire was applied to 830 students (healthcare group 1- 410; non-health care group 2- 420) at SRM University, Tamil Nadu.
**Results:** Of the 830 students (489 males, 341 females), 93.6% heard about epilepsy. Only 48% have seen a person with epilepsy. One fifth of them link epilepsy with mental illness. 6% believe it to be contagious. A relevant portion of the sample have negative attitudes towards epilepsy.
**Conclusions:** Though majority had reasonable knowledge of epilepsy, there is lack of information among students. Awareness programs should target students-the future pillars of the society.

**Keywords:** Awareness, University students, Knowledge

## INTRODUCTION

Epilepsy is one of the common neurological problems that affect people of all ages. Around 50 million worldwide suffer from epilepsy.[1] Nearly 80% of people with epilepsy are found in the developing countries. The prevalence rate of epilepsy in India ranges from 3.0 to 11.9 per 1,000 population. Nearly 12 million people with epilepsy live in our country.[2] Though it is a common disorder like hypertension, diabetes, coronary artery disease, asthma, and stroke, awareness among the general public is limited. It is still one of the diseases associated with much stigma that causes both psychological and social distress to the patients and their families. Studies in several countries show that people lack information concerning the disease, which generates negative attitudes and prejudice on individuals with epilepsy. Throughout the world, the misunderstanding, the resultant social stigma and discrimination that surround epilepsy are often more difficult to overcome than the seizures themselves.[3] People living with epilepsy can be targets of prejudice. The stigma of the disease can discourage people from seeking treatment for symptoms, so as to avoid becoming identified with the disease. The discriminating attitudes of the society not only affect education, employment, marriage, and social activities but also prevent people with epilepsy from seeking treatment.[4]

Considering the fact that the present youth are the future pillars of the society and are the people who would transform the society, an evaluation of the knowledge about epilepsy among the students would contribute to dispel myths and misconceptions about epilepsy and better understanding of the epileptics in the society. Though there is much literature about awareness of epilepsy among

health stream students, such studies among non- health stream students are limited .[5-8] Students are an important part of the society, who gains information from various sources including the social media. It is important that they possess the correct knowledge and attitude towards health care issues. Moreover, future health care professionals (medical and nursing students) should be well informed about epilepsy and take an appropriate attitude towards the disease for imparting better services to the patients. Hence this study was designed to assess the level of knowledge and attitudes on epilepsy among university students both health care and non- health care streams in a private university in South India.

## METHODS

It was a descriptive cross-sectional study conducted among the students of SRM University, located at the state of Tamil Nadu in South India from October 2013 to September 2014.

Sample size was calculated as based on the percentage of negative attitudes towards epilepsy reported in previous studies conducted in India. Studies reported that almost one third to on half of the respondents believe that persons with epilepsy could not be educated, married or employed. The sample size requirement for the current study was calculated as 812 presuming the prevalence of negative attitudes towards persons with epilepsy at 34% and allowing non respondence at 5%, an approximate sample size of 812 subjects were required.

A total of 830 students responded to our request. An equal number of students were randomly selected from health care courses: group1 (n=410, medical and dental) and non-health care courses: group 2 (n=420, engineering, arts and management). Those who were not willing and those who themselves suffer from epilepsy were excluded. Health stream students mainly consisted of third and fourth-year students, as they were expected to have better knowledge about epilepsy in view of their clinical exposure.

The students were informed about the purpose of the study. They completed a self-administered questionnaire after giving an informed verbal consent. The questionnaire was in English language and consisted of questions on awareness, knowledge about the causes and emergency management, attitudes toward persons with epilepsy and the students' information sources regarding this disease. Students were required to answer 'yes', 'no' or 'don't know'. The questions were utilized and modified from questionnaires used by other researchers previously.

The study was undertaken after approval from the institutional ethics committee. The students completed a self-administered questionnaire after giving an informed verbal consent.

The statistical analysis was performed using statistical package for social sciences version 13.0 (SPSS Inc., Chicago, IL) statistical software. Quantitative variables were described by means and standard deviations, and qualitative variables by frequency distributions, proportions, and percentages. Student 't' test and Chi-squared tests were used to determine the associations between the variables. A p value≤0.05 was considered as statistically significant.

## RESULTS

A total of 830 questionnaires were completed (group 1=410, group 2=420). 489 (58.9%) were males and 341 (41.1%) were females. Health stream (group 1) consisted of more females 239 (58.3%), whereas non health stream (group 2) had more males 318 (75.7%).

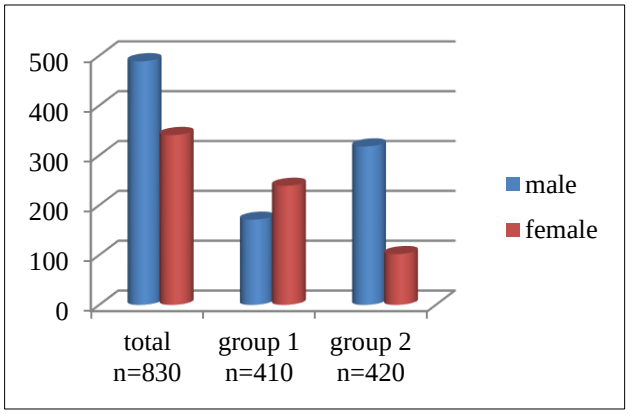


**Figure 1: Figure representing the sex ratio.**

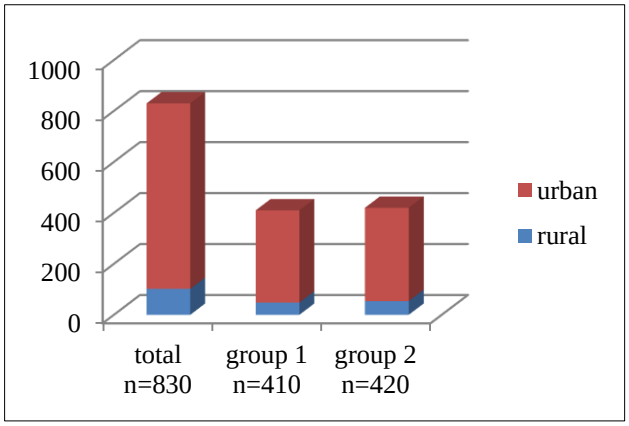


**Figure 2: Figure showing the background.**

Majority of the students (93.6%) were quite familiar with epilepsy. The proportion of students in group1 who had heard about epilepsy was higher than those in group 2 which was statistically significant (p=0.001). However, only half of them knew or seen someone with epilepsy. Regarding the source of information, 48% of the participants heard about epilepsy from family and friends (group 1=46.2%; group 2=49.5%), 35.5% from internet (group 1=37.8%; group 2=33.3%), and 16.5% from newspapers and magazines (group 1=15.8%; group 2=17.1%) (Table 1).

Table 2 reflects the knowledge level about epilepsy among the students. Nearly half (47.7%) of the students observed that epilepsy is not a mental illness or insanity. The proportion was significantly higher in group 1 (51.7%) compared to group 2 (43.8%) (p value=0.02). Nearly three fourths of the respondents knew that epilepsy is not due to possession of evil spirits or God's curse (74.9%) and is not contagious (77.4%) respectively. These proportions were higher in group 1 than in group 2 (group 1=79.3%; group 2=70.5%; p =0.03 and group 1=82.9%; group 2=71.9%; p=0.0001) respectively which were statistically significant. About one third (28.6%) of the participants considered epilepsy as an inherited disorder. Surprisingly this proportion was slightly higher among group 1 students, but was not statistically significant.

Table 3 reflects the knowledge of the students regarding the causes of epilepsy. Majority related tumour and head trauma as the main causes for seizures followed by stroke and infection. Health stream students fared better than non-health stream students.

Regarding the knowledge about management of epilepsy, nearly two-thirds of the students (65.2%) acknowledged that epilepsy is treatable and group 1 had better responses than group 2. Only 22.9% of them knew that drugs for epilepsy are available at all government hospitals at free of cost in Tamil Nadu. When asked what would they do when they see a person throwing seizures, only one third of them said that they would take the person to a hospital for treatment and positive responders belonging to group 1 was higher than in group 2 (group 1=31.7%; group 2=23.8%, p value=0.01). Nearly 56% of the total respondents replied that they would rather give the person keys to stop seizures. It was found that 47.6% of the health care students too gave this answer. 16.7% felt that they should restrain the patient during seizures (Table 4).

The questions that aimed at evaluating the attitudes of college students towards epilepsy and epileptics are depicted in Table 5. It was observed that a higher proportion of group 1 students believed that children with epilepsy can be allowed to play with others (group 1=75.9%; group 2=67.1%; p=0.005). Majority of group 1 students (80%) responded that they would employ someone with epilepsy (p=0.01). 68% of the participants felt that epileptics can lead a normal life and 50% of them believe that epilepsy has an impact upon education and career. Only one fourth of the respondents would marry someone with epilepsy if a situation arose (Table 5).

**Table 1: Awareness about epilepsy.**

| S. no. | Variable (yes) | Total (n=830) % | Health care group 1 (n=410) % | Non-health care group 2 (n=420) % | P value |
|---|---|---|---|---|---|
| **1** | Have you heard or read about epilepsy | 777 (93.6) | 395 (96.3) | 382 (91) | 0.001 |
| **2** | Have you known or seen anyone with epilepsy | 399 (48.1) | 205 (50) | 194 (46.2) | 0.27 |
| **3** | Source of information | | | | |
| | Newspapers /magazines | 137 (16.5) | 65 (15.8) | 72 (17.1) | |
| | Internet | 295 (35.5) | 155 (37.8) | 140 (33.3) | |
| | Family and friends | 398 (48) | 190 (46.2) | 208 (49.5) | |

**Table 2: Knowledge on epilepsy.**

| S. no. | Variables | Total (n=830) | Group 1 (n=410) | Group 2 (n=420) | P value |
|---|---|---|---|---|---|
| **1** | Mental illness or insanity | | | | |
| | Yes | 19 | 21 | 17.1 | |
| | No | 47.7 | 51.7 | 43.8 | 0.02 |
| | Don't know | 33.3 | 27.3 | 39.1 | |
| **2** | Due to evil spirits/gods curse | | | | |
| | Yes | 4.9 | 4.6 | 5.2 | |
| | No | 74.9 | 79.3 | 70.5 | 0.03 |
| | Don't know | 20.2 | 16.1 | 24.3 | |
| **3** | Contagious | | | | |
| | Yes | 6.0 | 4.9 | 7.1 | |
| | No | 77.4 | 82.9 | 71.9 | 0.0001 |
| | Don't know | 16.6 | 12.2 | 21 | |
| **4** | Hereditary | | | | |
| | Yes | 28.6 | 30 | 27.1 | |
| | No | 36.6 | 38.1 | 35.2 | 0.4 |
| | Don't know | 34.8 | 32 | 37.6 | |

**Table 3: Knowledge about causes of epilepsy.**

| S. no. | Causes | Total (n=830) % | Health care group 1 (n=410) % | Non–health care group 2 (n=420) % |
|---|---|---|---|---|
| **1** | Tumor | 78.4 | 92.6 | 64.2 |
| **2** | Head trauma | 77.2 | 87.8 | 66.6 |
| **3** | Infection | 15.1 | 15.9 | 14.3 |
| **4** | Stroke | 34.7 | 51.7 | 17.7 |

**Table 4: Knowledge on management of epilepsy.**

| S. no. | Variable | Total (n=830) % | Health care group 1 (n=410) % | Non–health care group 2 (n=420) % | P value |
|---|---|---|---|---|---|
| **1** | Treatable condition (yes) | 541 (65.2) | 277 (67.6) | 264 (62.9) | 0.15 |
| **2** | Know that drugs are available free of cost at GPHC/GH (yes) | 190 (22.9) | 101 (24.6) | 89 (21.2) | 0.23 |
| **3** | What is to be done when a person is seen throwing seizures? | | | | |
| | Take him to a hospital | 27.7 | 31.7 | 23.8 | 0.01 |
| | Give him a key | 55.5 | 47.6 | 63.3 | |
| | Restrain him to stop seizure | 16.7 | 20.7 | 12.9 | |

Note: GPHC - Government primary health centre; GH - Government hospital

**Table 5: Attitudes towards persons with epilepsy.**

| S. no. | Variable (yes) | Total (n=830) % | Health care group 1 (n=410) % | Non health care group 2 (n=420) % | P value |
|---|---|---|---|---|---|
| **1** | Epileptic children can be allowed to play with others | 71.5 | 311 (75.9) | 282 (67.1) | 0.005 |
| **2** | Would employ someone with epilepsy | 76.1 | 328 (80) | 304 (72.4) | 0.01 |
| **3** | Think that epileptics can lead a normal life | 68.3 | 287 (70) | 280 (66.6) | 0.3 |
| **4** | Think that epilepsy does not affect education and career | 53.6 | 231 (56.3) | 214 (51) | 0.11 |
| **5** | Would marry someone with epilepsy | 25.5 | 94 (22.9) | 118 (28.1) | 0.08 |

## DISCUSSION

This university-based study shows the awareness, knowledge and attitudes towards epilepsy among the college students in general and have also compared the responses between health stream students (medical and dental) who will provide care to epileptic patients in future and non-health stream students. Males (58.9%) predominated the study. There were more females in the health stream (58.3%). Studies which included only medical students shared a similar picture. predominance of female subjects (82.5%, 83.1%).[9,10]

The current study revealed that majority (93.6%) of the students were quite familiar with epilepsy, which is similar to the trends reported in other studies among university students from different parts of the world.[5,7] The proportion of health stream students who have heard about epilepsy was significantly higher than non-health stream students (96.3% versus 91%). Studies involving only heath stream students quoted a similar trend.[9,11,12] Though majority have heard about epilepsy, only 48.1% of the respondents (group1- 50%, group 2- 46.2%) have seen or known someone with epilepsy. This is in agreement with the Malaysian study.[6] However studies of healthcare students from Brazil (67.9%) and Nigeria (61.3%) have reported a higher percentage, whereas from Saudi Arabia (32.7%) and India (25%) have reported in a lower percentage.[9,11-13] One-third of the students in our study relied upon internet for gathering information about epilepsy and one sixth from print media. This underscores the importance of mass media and social media in spreading awareness among the people on health-related issues.

With reference to knowledge about epilepsy, we found that nearly half of the respondents believe categorically that epilepsy is not a mental disorder. Though it was statistically significant between the two groups (51.7 versus 43.8% with a p value of 0.02), it was worrisome to realize the fact that the remaining half deemed epilepsy as a mental disorder or were not sure about it. Studies from Libya and North India quote similar percentages (57.5, 40% respectively).[7,13] The relation of insanity to epilepsy has been considered to be ancient despite scientific evidences to the contrary. Though a categorical negative response was obtained from 75% students in the present study, 5% of the respondents still feel that epilepsy could

be due to possession of evil spirits or God's curse. The Malaysian (5.3%), Ethiopian (4.8%) and Nigerian (5.4%) studies have also quoted a similar percentage, whereas the study from Libya quoted a very high percentage (37.5%).[6,7,12,14] Similarly, though a larger proportion considered epilepsy as non-contagious, 6% of the students opined it a contagious disease. The fact that around 5% of health stream students also had the similar opinion is appalling, as the Brazilian study and the study from North India reported none (0%) or a very negligible percent (0.5%).[9,13] About one third of our participants thought epilepsy as an inherited disorder, which was on par with the Italian study but much lower than other studies.[5,6,15] Though the proportions of health stream students who gave correct negative responses to these questions were higher than non-health stream students, about 20-30% of the participants were uncertain about their answers. We presume that these negative concepts are not due to lack of information alone but also to stigmas prevalent in the cultures.

Majority of the health stream students considered tumours (92.6%) can cause epilepsy followed by head trauma (87.8%), stroke (51.7%) and infections (15.9%). Both Nigerian and Ethiopian studies have made similar observations.[12,14]

Nearly two-thirds of the students (65.2%) acknowledged that epilepsy is treatable and health care students fared better than non-health care stream students. This is in accordance with the study from North India (68%).[13] As for as the first aid measures to be taken during an episode of seizure, nearly 56% of the total respondents replied that they would give the person keys to stop seizures. It was found that half of the health care students too had the same notion. The Manipal study which included only the healthcare students and the Bangalore study which included only non-medical science stream students reported that one third of their cohort (30% and 34% respectively) would insert keys into the patients hands whereas the North Indian study quoted a negligible percentage of 0.5.[8,13,15] This mistaken idea was also mentioned by 55% of the lay people in another study.[16] This practice of keeping keys or iron piece in hands during seizures has not been mentioned in any other study from other countries and it seems to be prevailing only in South India. About 16.7% felt that they should restrain the patient during seizures. The Brazilian study demonstrated that 6% of their participants followed this practice.[9] These data suggest that there is lack of information about proper assistance during seizures among the college students including medical students.

Epilepsy is associated with social stigma worldwide which results in psychological and social distress to patients and families. Several studies have established that negative attitude towards epilepsy have a greater impact on schooling, employment, marriage and other social activities. Myths and misconceptions regarding epilepsy are still widespread among the population through generations. Majority of the students in our study had positive attitudes towards people with epilepsy. Three fourths of our cohort were of the opinion that children with epilepsy could be allowed to play with others, which is similar to the observations made by other studies.[11,13] In the present study, 80% of health care students responded that they were willing to employ a person with epilepsy. This is in accordance with the Manipal (77.7%) and the Canadian study (84%) study.[15,17] However Brazilian study has quoted a higher percentage (90.4%) and the Saudi study quoted a lower percent (56.8%).[9,11] Nearly 70% of the participants felt that epileptics can lead a normal life and 50% of them believe that epilepsy has an impact upon education and career which is in accordance with the Bangalore study.[8]

On epilepsy and marriage, only one fourth of the students would come forward to marry a person with epilepsy. Ironically this negative attitude was more common in health care students than the non-health stream students (23% versus 28%) revealing that non-health care students are more open minded. This attitude was comparable with what was observed in Saudi Arabian study (33.7%), but much lower than the observations made by Malaysian study (85.1%), Canadian study (95%) showing that a clear social bias against an epileptic with reference to marriage exists in our country.[6,11,17]

### *Limitations*

The study was carried out exclusively among the students of a single university. It would have yielded more information, if students from multiple institutions had been included.

## CONCLUSION

This study shows that though university students are familiar with epilepsy, there are major gaps in their knowledge and attitudes towards the disease. Health care students are better informed than non-health care students. Misconceptions and negative attitudes still prevail in a significant proportion of the college students including health care undergraduates. Hence a comprehensive awareness programs about epilepsy are worthwhile in college education to dispel the misconceptions about epilepsy and a detailed discussion of the subject to the undergraduates in medical stream is necessary to impart the correct knowledge and practices.

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*Ethical approval: The study was approved by the Institutional Ethics Committee*

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