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Socioeconomic status of epileptic and non-epileptic patients of Tirupati region

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Abstract

India is a developing country with mixed socio-economic background. Several socio-economic and cultural traditions have a great impact on many medico-social problems in developing countries. This is more pertinent in the area of epilepsy, as socio-economic status influences its awareness, proper follow up, treatment continuation, education, occupation, financial status etc. Socio-demographic and epidemiological transition warrants Indian public health society to give prior attention as epilepsy is an eminently preventable and manageable condition. The present study was undertaken in epileptic and non-epileptic male and female patients to study the association of epilepsy with socioeconomic status, income, education, occupation and gender. Socio-economic characteristics of the respondents in the study showed similar patterns for both epileptics and non-epileptics which could be due to selection of subjects of study from below poverty line families. In addition, a prominent feature was observed during the study where people with epilepsy carry the burden of social stigma and isolation along with their disease which further escalates the burden of disease and prevents them from joining the mainstream of the society for education, jobs, and marriages which finally results either in unemployment or income below poverty line.

Keywords: Epilepsy, socio-economic status, non-epileptics and below poverty line.

1. Introduction

Epilepsy is an important medico-social problem in the developing countries including India, our country hubs about 10 million people with epilepsy. The prevalence rate in India is observed to range from 4.15 to 7.03% per 1000 population (Sridharan and Murthy, 1999) [18]. It is an abnormal sudden intense electrical impulse outburst in the brain which causes an involuntary change in body movement or function, sensation, awareness or behavior. It can vary from momentary disruption of the senses, to short periods of unconsciousness to convulsions (Turner and Glickman, 2005; National Center for Chronic Disease Prevention and Health Promotion, 2009; WHO, 2012) [21, 16, 22].

India is a developing country with mixed socio-economic background. Several socio-economic and cultural traditions have a great impact on many medico-social problems in developing countries. This huge burden can probably be attributed to large population, lower income, education, socio-cultural prejudice, inadequate resources, competing infections, non-communicable diseases and less importance given to health aspects of epilepsy. Moreover, number of doctors specialized as epileptologists and neurologists are not enough to give their services in India. People with epilepsy carry the burden of social stigma and isolation along with their disease which further escalates the burden of disease (Jain and Sathischandra, 1998) [19]. The social effects may vary from country to country and culture to culture, but it is clear that all over the world the social consequences of epilepsy are often more difficult to overcome than the seizures themselves. Women with epilepsy experience tremendous social stigma and alienation in life. They face unique challenges, some of which arise from the interaction between endocrine hormones and the mechanism of epilepsy. The reciprocal influence of epilepsy and endocrine hormones affect one another such that hormonal changes impact epilepsy and epilepsy impacts hormonal functioning (Morrell, 1992; Morrell, 1998; Morrell, 1999; Klein and Herzog, 1998) [13, 14, 15, 11]. These relationships affect the health of women with epilepsy. The interaction of endocrine hormones and epilepsy in men is less obvious because men, unlike women do not experience marked monthly hormonal fluctuations that occur with menstruation. Fluctuation in sex hormones can increase vulnerability to seizures in many women (Harden, 2003; Harden *et al.*, 2006) [6, 7].

Rural women have additional bottle necks in terms of lack of access to public health and poor economic conditions at home. The reasons include services may be unavailable or inaccessible, or women may be unable to find affordable transport. Socio-cultural norms also often limit women's mobility and interaction with male health providers. Many studies have indicated that women carry a higher burden of chronic ailments in the absence of care or total neglect of illnesses.

Limited detailed data is available on gauging the occurrence of this condition as per education, occupation and income through field studies. However, socioeconomic status has a strong association with birth trauma, infections, poor nutrition, poor hygiene and poor health seeking behavior which influences the risk of epilepsy and its outcome. The present study was undertaken in epileptic and non-epileptic male and female patients to study and understand the burden, distribution and risk factors viz., socio-economic status, income and education of status of people suffering with epilepsy.

2. Materials and methods

2.1 Selection of subjects – Inclusion and exclusion criteria

Epileptic subjects (n= 459) with an age range of 3 to ≤80 years of both sexes (Males –270 and Females –189), below poverty line category, regularly attending epilepsy clinic of the Super Specialty Hospital Sri Venkateswara Institute of Medical Sciences (SVIMS), Tirupati, patients on anti-epileptic drugs treatment and physically active were included in the study. Patients with comorbid illness such as gastrointestinal illness and chronic liver and kidney diseases were not included in the study. Remaining subjects were (n=243; males –106 and females –137) non-epileptics also belonged to below poverty line category and who were attending other outpatient clinics other than epilepsy were included in the study to compare their general health conditions with epilepsy patients.

2.2 Collection of data on socio-economic status from subjects

The data was collected using personal interview schedule in order to collect information regarding socioeconomic characteristics of the epileptic and non-epileptic subjects. Details regarding family type and size, average annual income, caste, education, employment status, superstitious beliefs and social stigmas were collected. The information was recorded and kept safe for future reference. The medical information relating to epileptic and non-epileptic patients was collected from Medical records of SVIMS, Tirupati.

3. Results and discussion

A total number of 702 respondents both male and female in the study were randomly selected and classified based on their caste (Table 1). Total number of epileptic female and male subjects was 189 and 270, respectively; among them 30, 71, 140 and 218 belonged to shudule tribe, shudule caste, other category and backward class, respectively. Female epileptic subjects from shudule caste were more in number (n=42) than male epileptic subjects whereas in other caste categories male epileptic subjects were found to be more in number than females. Backward class had highest percentage (47) of male respondents followed by other class (31) and shudule tribe (15). The control group had almost equal number of females and males distributed in four castes with females being slightly more in number than males.

Table 1: Classification of respondents based on caste

Group	Caste	Females	Males	Total
Epileptic	SC	42 (59)	29 (41)	71 (15)*
	ST	10 (33)	20 (67)	30 (7)
	BC	81 (37)	137 (63)	218 (47)
	OC	56 (40)	84 (60)	140 (31)
	Total	189 (41)	270 (59)	459 (65)
Non-epileptic	SC	27 (66)	14 (34)	41 (17)
	ST	14 (48)	15 (52)	29 (12)
	BC	45 (56)	36 (44)	81 (33)
	OC	51 (55)	41 (45)	92 (38)
	Total	137 (56)	106 (44)	243 (35)
			Grand Total	702

SC- Shudule caste, ST- Shudule tribe, BC- Backward class, OC- Other class

*Values in parenthesis are as percentages

Table 2 presents classified epileptic and non-epileptic respondents based on their education status. Among the total number of epileptic respondents (n=459) only 3 (0.7%) males were illiterate. Percentage of epileptics who had completed their primary, secondary and college education was 67.5, 26.7 and 2, respectively; among them number of males (n=264) was found to be higher than female respondents (n=181). Boys and girls both epileptic and non-epileptic under the age of 5 years were not included in educational classification.

Table 2: Classification of respondents based on education

Group	Education	Females	Males	Total
Epileptic	Illiterate	Nil	03 (100)	3 (0.7)*
	Primary education	129 (42)	181 (58)	310 (67.5)
	Secondary education	52 (41)	75 (59)	127 (27.6)
	College	Nil	08 (100)	08 (1.7)
	Age <5 yrs	08 (73)	03 (27)	11 (2.4)
	Total	189 (41)	270 (59)	459 (65)
Non-epileptic	Illiterate	19 (83)	04 (17)	23 (9.4)
	Primary education	54 (46)	64 (54)	118 (48.5)
	Secondary education	14 (29)	34 (71)	48 (19.8)
	College	49 (92)	04 (8)	53 (21.8)
	Age <5 yrs	01 (100)	Nil	01 (0.4)
	Total	137 (56)	106 (44)	243 (35)
			Grand Total	702

*Values in parenthesis are as percentages

The above results are supported by a recent study conducted on 196 epileptic cases in Karnataka where more than 80% patients belonged to low socioeconomic status and were also found to be unskilled (Joseph *et al.*, 2103)^[10]. Studies have also shown that people, who have completed school education up to middle and high levels in urban and slum areas had higher rates for epilepsy (Tandon, 1989; Banerjee *et al.*, 2010)^[19, 1].

Occupation of the epileptic and non-epileptic respondents is presented in Table 3. Both epileptic and non-epileptic groups had highest number of respondents as laborers and those who were not employed. Epileptic laborers and not employed respondents were 141 (30.7%) and 143 (31.2%) in number, respectively; among these male respondents were found to be slightly higher in number than females. On the other hand, non-epileptic laborers and unemployed respondents were 35% for each group with almost similar number of females and males. Total number of females as housewives was 10 as non-epileptics and 30 as epileptics. Epileptic employees were 53 (11.5%) in total, among these males employees were more in number (85%) than female respondents (15%). Male and female non-epileptic employees were 28 (12%) in number which is observed to be half of epileptics.

Table 3: Occupation details of the respondents

Group	Occupation	Females	Males	Total
Epileptic	Labour	49 (35)	92 (65)	141 (30.7)*
	House wife	30 (100)	Nil	30 (6.5)
	Employee	08 (15)	45 (85)	53 (11.5)
	Business	21 (45)	26 (55)	47 (10.2)
	Teacher	02 (25)	06 (75)	08 (1.7)
	Others	19 (51)	18 (49)	37 (8.2)
	Not employed	60 (42)	83 (58)	143 (31.2)
	Total	189 (41)	270 (59)	459 (65)
Non-Epileptic	Labour	43 (50)	43 (50)	86 (35)
	House wife	10 (100)	Nil	10 (4)
	Employee	15 (54)	13 (46)	28 (12)
	Business	11 (79)	03 (21)	14 (6)
	Teacher	Nil	03 (100)	03 (1)
	Others	12 (75)	04 (25)	16 (7)
	Not employed	46 (53)	40 (47)	86 (35)
	Total	137 (56)	106 (44)	243 (35)
			Grand Total	702

*Values in parenthesis are as percentages

An interesting observation was made in both epileptic and non-epileptic groups with relation to business as an occupation. Female respondents irrespective of the sex were found to be higher in number as business women than males

with 11 and 21 for non-epileptics and epileptic, respectively. Teaching was not observed to be opted more as a profession among male and females in both the groups. Respondents categorized as others under occupation were 16 and 37 as non-epileptics and epileptics, respectively. Female respondents of both the groups were more in number than males with respect to occupation.

Family income of the respondents is shown in Table 4. Among total number of epileptic (n= 459) respondents 259 (56.4%) were found to have annual income of <25000 followed by 117 (25.5%) with 25000-50000, 51 (11.1%) with 50000-75000, 16 (3.5%) with 75000-100000 and 100000-150000 per annum, respectively. Epileptic male respondents were found to be more in number in all the categories than females except the last range of annual income where being epileptic women they were more in number (13) than men (3) among total number of 16 (3.5%). Similar observation was made with non-epileptic group, out of the total number of 243 respondents 151 (62.2%) were found to have annual income of <25000 followed by 54 (22.2%) with 25000-50000, 20 (8.2%) with 50000-75000, 13 (5.3%) with 75000-100000 and 5 (2.1%) with 100000-150000 per annum, respectively. Number of female respondents was slightly more than males except the last two ranges of income with equal number of respondents.

Table 4: Family income of the respondents

Group	Family Income	Females	Males	Total	
	(Rs. per annum)				
Epileptic	<25000	111 (43)	148 (57)	259	(56.4)
	25000-50000	45 (38)	72 (62)	117	(25.5)
	50000-75000	17 (33)	34 (67)	51	(11.1)
	75000-100000	03 (19)	13 (81)	16	(3.5)
	100000-150000	13 (81)	03 (19)	16	(3.5)
	Total	189 (41)	270 (59)	459	(65)
Non-Epileptic	<25000	85 (56)	66 (44)	151	(62.2)
	25000-50000	31 (57)	23 (43)	54	(22.2)
	50000-75000	12 (60)	08 (40)	20	(8.2)
	75000-100000	06 (46)	07 (54)	13	(5.3)
	100000-150000	03 (60)	02 (40)	05	(2.1)
	Total	137 (56)	106 (44)	243	(35)
			Grand Total	702	

*Values in parenthesis are percentages

People with epilepsy are also subjected to underemployment, relative to the level of their skills and qualifications with related impacts on their financial status and psychological well-being (Jacoby *et al.*, 1998) [8]. Research has shown that people with epilepsy are more likely to experience problems in identifying a job, than the general population. This can be caused by employer prejudice resulting from stigma and a lack of information, a belief that machinery should be avoided by the people with epilepsy, inability to drive, or poor academic achievement. Disclosure to an employer is therefore a difficult decision. Unemployment commonly results in low socioeconomic status, low self-esteem, and low quality of life. Socioeconomic status and occupation sometimes carry a significantly increased risk of hospitalization for epilepsy. Low income and low education was found to be associated with an increased risk among both men and women (Gumnit, 1997; Bishop and Hermann, 2000; Li *et al.*, 2008) [5, 2, 12].

Table 5 presents a correlation between sociocultural practices and epilepsy based on gender. Out of 459 epileptic subjects, females were subjected to certain religious practices for curing

epilepsy and expressed that epilepsy is a social stigma; among them 82 (43.4%) and 161 (85.2%) females were subjected to superstitious beliefs and social stigmas. Earlier studies from India on this front have reported higher prevalence among men as compared to females. With progress in time, this wide difference has narrowed down. Radhakrishnan *et al.*, (2000) [17] reported a prevalence rate of 5.2 for males and 4.7 for females per 1000, respectively. Slightly higher prevalence rates (per 1000) of 6.1 in males and 5.2 in females have been reported (Gourie-Devi *et al.*, 2004) [4]. Similarly, Das *et al.*, (2006) reported a prevalence of 5.9 and 5.2 per 1000 in males and females, respectively. Authors of the above study also reported higher prevalence for men in the younger age group and women in the older age group. Therefore, in spite of narrowing down the gender differentials, prevalence and incidence of epilepsy in males are still higher than females. Women with epilepsy in India are estimated to be about 2.73 million with 52% belonging to the reproductive (15-49 years) age group (Thomas *et al.*, 2011) [20].

Table 5: Gender based socio-cultural practices and epilepsy

Group		Males	Females	Total
Superstitious belief	Yes	38 (31.6)	82 (63.1)	120 (26.1)*
	No	232 (68.4)	107 (31.5)	339 (73.8)
		270	189	459
Social stigma	Yes	16 (9)	161 (90.9)	177 (38.5)
	No	254 (90.7)	28 (9.9)	282 (61.4)
		270	189	459

*Values in parenthesis are percentages

4. Conclusions

Sociodemographic and epidemiological transition warrants Indian public health society to give prior attention as epilepsy is an eminently preventable and manageable condition. The socio-economic characteristics of the respondents of the study showed similar patterns for both epileptic and non-epileptic respondents which could be due to selection of subjects of the study from below poverty line families. Another striking feature observed was that this disease was seen as a curse and the patients were subjected to social stigmas which prevent them from joining the mainstream of the society for their education, jobs, marriages, etc.

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