Impact of Socio Economic Status and Cultural Factors on the Prevalence of Epilepsy: Study in Kashmir

Gurmeet Singh¹, Sheikh M. Saleem²

ABSTRACT

Introduction: The social and economic problems caused by epilepsy are often under appreciated. The message should reach the broadest population of affected individuals, many of whom are in low socio economic groups and are at higher risk for development of epilepsy. Study aimed to assess the impact of socio economic status and cultural factors on the prevalence of epilepsy in school going Children (6-16 years) in Kashmir.

Material and methods: This was a population based study conducted in school children. The selection of school was done by using PPS Method (Proportionate to Population Size) used in cluster surveys. The Pretexed Questionnaire was administered to 60 randomly selected children from each selected school, the positive responders were examined by the neurologist and psychologist.

Results: The crude Prevalence of epilepsy in school going children was 3.8/1000 for males which was higher than females 2.77. The Govt schools had higher prevalence 3.81/1000 as compared to private schools 2.79/1000 reflecting higher prevalence in economically weaker section. Children from lower middle class had highest prevalence 3.56/1000.

Conclusion: The prevalence of Epilepsy seems to increase with socio economic deprivation though the association may be compounded by other factors. The overall prevalence was comparable to other studies. However there is significant improvement about the awareness of epilepsy in Kashmir valley over the past decades.

Keywords: Impact of Socio Economic Status, Impact of Cultural Factors, Prevalence of Epilepsy

INTRODUCTION

Socio economic status (SES) encompasses not just income but also educational attainment, occupation prestige and subjective perception of social status and social class.¹ Epilepsy is associated with wide range of markers of social and economic disadvantage including poor academic achievement, unemployment, under employment and low income.² The people who are socially and economically deprived are more likely to develop epilepsy. This hypothesis is supported to some extent by the observation that the incidence of epilepsy is higher in developing countries than the developed countries.³

The NHS and WHO organization aim to reduce inequalities in health.⁴ This can be achieved by concentrating resources on conditions that effect socially and economically deprived people. The prevalence of epilepsy in studies to date exhibits a wide range of variation varying between 2.8 to 44 per 1000.⁵ The determination of prevalence value and epilepsy-related risk factor makes particular contribution to public health population.⁶ The fact that disease is more seen in children of families with low socio economic levels. Uncertainty as to when the epileptic child’s seizure will take place and how severe they will be, lack of sufficient knowledge regarding steps to be taken during and after epileptic episode, fact that prolonged seizure and drugs used cause brain damage and memory problems that in turn lead to learning difficulties and attention impairment are regarded as medico social problems. As a result search for solutions outside modern medicine, such as visiting religious figures and tombs of holy individuals out of a belief that the patient is infected by evil spirits and djinn/genies.⁷ Socio-economic status and occupation sometimes carry a significantly increased risk of hospitalization for epilepsy.⁸ Low income and low education are associated with the increased risk of epilepsy among both men and women.⁹ Stigma continues, nowadays, in both the public and private spheres but polls suggest, it is generally decreasing with time, at least in developed world.¹⁰ A few epidemiological studies have confirmed an association between prevalence of epilepsy and markers of social disadvantage. Over 30% of people with epilepsy do not have seizure control even with the best available medications.¹¹ Low socio economic status is associated with higher emotional and behavioural difficulties including social problems, deliquent behavior and attention deficit, hyperactivity among adolescents.

The purpose of the study was to access relation between socio economic status, cultural factors with prevalent epilepsy.

MATERIAL AND METHODS

The study was conducted in six districts of Kashmir with total population of 5476970, males 2877211 and females 2519759. The population of school going children was 1231139 males and 1101028 females. The selection of schools was done using PPS proportionate to population size method used in cluster survey.¹² It composed of following four steps.

CORRESPONDING AUTHOR: Dr Gurmeet Singh Singhpore, Kalan Baramulla

How to cite this article: Gurmeet Singh, Sheikh M. Saleem. Impact of socio economic status and cultural factors on the prevalence of epilepsy: study in Kashmir. International Journal of Contemporary Medical Research 2019;6(4):D14-D17.

DOI: http://dx.doi.org/10.21276/ijcmr.2019.6.4.43
1. The list of schools along with their enrollment was procured from directorate of school education. The schools were serially arranged student cumulative population was calculated.

2. Sampling interval was calculated by dividing the cumulative population by cluster number 30.

3. One school which had cumulative population between one and the sampling interval was randomly selected.

4. Next school was selected by adding sampling interval to the cumulative population of the first selected school and so on. Sixty students 30 boys and 30 girls were screened from each school. Total number of schools screened in valley was 96(16 schools in each district), the screened schools included both govt. and private schools in urban as well as rural areas. A preformed questionnaire modified from WHO questionnaire was validated by neurologist psychologist. The sensitivity and specificity of the questionnaire was 100% and 78% respectively. Questionnaire was administered in local language and each child was interviewed separately. Those children who were suspected to have epilepsy, there symptoms were subsequently confirmed by interview with eye witness of the episode. A neurologist and psychologist were present at the time of final interview. A total of nine hundred and sixty children were screened in each district. THE Definitions were adopted from the guidelines for epidemiological studies on epilepsy, a document published by international league against epilepsy (ILAE) following types of seizures were excluded from study, febrile seizures, seizures with CNS infections, provoked symptomatic seizures.

Following information regarding socioeconomic status of children was sought from parents as Age, sex, family Size, Income, occupation Education, Obstetric history, Birth order Other traditional method like visiting a quack PIR . Socioeconomic status of the child was assessed on the basis of Kuppaswamy classification this scale has been widely used in India based on three variables education, occupation and income Screening questionnaire

**Screening questionnaire**

**Table 1**

|     | No. of positive cases | Percentage (%) | Population rate | Percentage/1000 |
|-----|-----------------------|----------------|-----------------|-----------------|
| Upper class | 1 | 5.2% | 306 | 3.26 |
| Upper middle class | 5 | 26.3% | 1538 | 3.25 |
| Average middle class | 6 | 31.57% | 1791 | 3.35 |
| Lower middle class | 4 | 21.0% | 1123 | 3.56 |
| Lower class | 3 | 15.7% | 912 | 3.28 |
| Total | 19 | | | |

**Table-1:** Impact of Socio-Economic Status on the prevalence of epilepsy

**Table-2:** Gender specific prevalence rate of prevalence of epilepsy in school going children in Kashmir valley

| Sex     | No. of Positive Cases (n) | Percentage (%) | Population at risk | Prevalence / 1000 |
|---------|---------------------------|----------------|--------------------|-------------------|
| Males   | 11                        | 57.9%          | 2880               | 3.81              |
| Females | 8                         | 42.1%          | 2880               | 2.77              |
| Total   | 19                        |                |                    |                   |

**RESULTS**

This was a population based study conducted in school children. The selection of school was done by using PPS Method (Proportionate to Population Size) used in cluster surveys. The Pretexted Questionnaire was administered to 60 randomly selected children from each selected school (30 boys and 30 girls). The schools included both urban and rural areas. The overall prevalence of epilepsy was 3.3/1000. Highest prevalence of epilepsy 3.56/1000 was observed in the lower middle class and lowest prevalence of epilepsy in the upper class 3.26/1000 (table 1).

According to gender, the prevalence rate was slightly higher
in males (3.81/1000) then females 2.77/1000 (table 2). Out of 19 cases of epilepsy 11 (57.9%) were from Government run schools and 8 cases (42.1%) were from private educational institutions table 3. In our study 89.5% of children whose mothers were unskilled had epilepsy while as the children of skilled mothers the percentage of epilepsy was 10.5% (table 4). In our study the fathers occupation had an impact on prevalence of epilepsy. The percentage of epilepsy in children whose fathers were unskilled was 42.1% while as the children whose fathers were semi skilled the percentage of epilepsy was 26.3% (table 5).

**DISSCUSSION**

The determination of prevalence value and epilepsy-related risk factors make a particular contribution to public health planning. Tellez-Zenteno et al determined significant higher prevalence of epilepsy in families with low monthly income, low education levels and facing the problem of unemployment in the research they conducted in Canada. In this study in agreement with the literature, while the prevalence of epilepsy was 13 per 1000 in those with poor economic level, the figures were 7 per 1000 and 3 per 1000 in those with average and good economic level respectively. In our study highest prevalence rate of epilepsy was in lower middle class 3.56 per 1000 we attributed these findings to epilepsy being frequently seen in low Socio Economic group. Socio Economic Status which is associated with several individual risk factors for cardiovascular disease and Alzheimer’s disease, many of which like low education and socioeconomic deprivation are risk factors for epilepsy. Holing sherd in USA implied three variables ie education, occupation and residential address for measuring socio economic status. In our study children of skilled educated mothers, prevalence of epilepsy was 10.5% as compared to children of unskilled mothers 89.3%. In our study mothers education was important risk factor for epilepsy. As socioeconomic status is associated with several individual risk factors, low education and socioeconomic deprivation is also a risk factor for epilepsy. In our study higher prevalence rate of epilepsy 3.81per 1000 was found in govt schools as compared to private schools 2.77per1000. As most of govt schools are located in rural areas reflecting lower income and belong to low socio economic group. Children of females with average income level had 3.3 fold risk of developing epilepsy than those with good income level, those with poor family income level had a 1.6 fold greater risk of developing epilepsy than those with good income level. Guvenes et al found higher prevalence of epilepsy in rural areas as compared to urban areas. Aziz et al found higher prevalence of epilepsy in rural areas as compared to urban areas. These findings are consistent with our study. Low Socio economic status is a risk factor for development of epilepsy. Low Socio economic status is associated with social and economic deprivation, unemployment and low income which is in turn associated with risk factors like incidence of birth defects, infection and poor nutrition. The true prevalence rates need to be determined with studies involving different socioeconomic strata. Maintaining a strong parent child bond helps to promote healthy child development for the children of low Socio Economic Status.

**CONCLUSION**

The highest prevalence of epilepsy was found in the lower middle class 3.56/1000. The higher percentage of epilepsy was found in children of unskilled mothers 89.5% as compared to skilled mothers (10.5%). In our Study the prevalence of epilepsy was higher in government run schools 3.81/1000 as compared to the private schools 2.77/1000. Significant association was found between low socio economic status and prevalence of epilepsy. Further research is needed to better understand the intricate relationship among socio cultural, demographic risk factors and epilepsy in order to ensure the best possible outcome for individuals with epilepsy.

**ACKNOWLEDGEMENT**

The Author likes to thanks the head and teachers of different school. Special thanks to children and parents who participated in the study. This is a part of doctorate thesis of Dr. Gurmeet Singh.

**REFERENCES**

1. https://www.apa.org/pl/SES/resources/publications/childrenfamilies.
2. Roden E. Vocational and educational problems with epileptic patients. Epilepsia (1972 13149-160).
3. Sander JW et al. epidemiology of epilepsies. J neuro/ neurosurgery Psychiatry 1996; 61:433-443.
4. WHO Targets for all cophenhagen world Health organization (1985).
5. Campolat M, Kumandas S, Poyrazoglu HG, Gumus H, Elmali F, Per H. Prevalence and risk factors of Epilepsy
among school children in Kayseri city center an urban area in central Anatolia, Turkey. Seizure. 2014;23:708-16.

6. PR de Bittencourt, B. Adamolekum, N. Bharucha, A. Carpio, O.H. Cassio, M.A. Danesi, et al. Epilepsy in the tropics. I. Epidemiological, Socioeconomic risk factors and etiology. Epilepsia 1996;37:1121-1127.

7. Govener A, Isik A et al. Epidemiological clinical and socio cultural aspects of epilepsy in a community based surveys in a central Anatolia. J Research Med Sec 1990;8:151-9.

8. Dockerty JD, Draper G et al. Case control study of parental age parity and social economic level in relation to childhood Cancers International J. epidemiol 2001;30:1428-1437.

9. Gaitatizis A carrol K, Majeed A and Sander J. The epidemiology of the co-morbidity of epilepsy in the general population. Epilepsia 2004;45:1613-1622.

10. Jiler-(Aall) L., Morbus Sacer in Africa: Some religious aspects of epilepsy in traditional cultures. Epilepsy 1999;40:382-386.

11. Fisher R, Van Emde Boes W, blume W and Elger C. Epileptic seizures and epilepsy definitions proposed by the (ILAE) and the international Bureau for epilepsy (IBE). Epilepsia 2005;46:470-472.

12. Sample size calculation for preparation of cluster service Kevin M. Sullivan. Deparment of Epidemiology Emory University, Atlanta, GA, USA.

13. PR de Bttencourt B. Admolekum et al. Epilepsy. Epidemiemal 1972;95 292-298.

14. Huseyinoglu N1, Ozben S, Arhan E, Palanci Y, Gunes N. Prevalence and risk factors of epilepsy among school children in eastern Turkey. Pediatr Neurol. 2012;47:13-8.

15. Park Jo, Shin SD, Kim J, song Kj, peck MD.Association between socio economic status and burn injury severity Burns 2009; 35:482-490.

16. Parks, text book of preventive and social medicine, third edition 2002;476-479.

17. Murphy JM, Horton NJ, MonSon RR Laird NN, Sobol AM, Leightom AH. Cigarette smoking in relation to depression, Historical trends from the striding country study Am J psychiatry 2003; 160: 1663-1669.

18. Guvenes Aziz H et al. Prevalence of epilepsy in Turkey. Epilepsia 1989;23:23-29.

19. Aziz H, Ali SM, France P, khan MI and Hassan KZ, epilepsy in Pakistan. A population based epidemiological study. Epilpsia 1994; 35:950-958.

20. Matuja WB, Kelonzo et al. Risk factor for epilepsy in rural area in Tanzania Community based case control Study Neuro epidemiology 2001;34:242-247.