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 underappreciated. 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 influence 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 over all 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/genres.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 woman.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:

How to cite this article: Gurmeet Singh Singhpore, Kalan Baramulla

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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/PRI. Socioeconomic status of the child was accessed 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**

<table>
<thead>
<tr>
<th>Have you ever lost consciousness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have you ever had uncontrollable shaking of your arms and legs</td>
</tr>
<tr>
<td>Have you ever had episodes in which you lost contact with the surroundings.</td>
</tr>
<tr>
<td>Have you ever had Laith/Larn/Mirgi</td>
</tr>
<tr>
<td>Have you ever visted Quack(PIR)/Saint</td>
</tr>
<tr>
<td>Do you ever sometimes have panic attacks</td>
</tr>
<tr>
<td>Do any one in your family had epilepsy</td>
</tr>
<tr>
<td>Have you ever lost control of your bowel or bladder</td>
</tr>
<tr>
<td>Have you ever injured your self (tounge bite/burn injury)</td>
</tr>
<tr>
<td>Have you ever had episodes of black spells with staring look or strange behavior observation.</td>
</tr>
</tbody>
</table>

The presence study was purely a descriptive investigation, no statistical tests of significance where used in the analysis of the data, only descriptive

**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 Pretexed 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

<table>
<thead>
<tr>
<th>Socio economic status</th>
<th>No. of positive cases</th>
<th>Percentage (%)</th>
<th>Population rate</th>
<th>Percentage/1000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper class</td>
<td>1</td>
<td>5.2%</td>
<td>306</td>
<td>3.26</td>
</tr>
<tr>
<td>Upper middle class</td>
<td>5</td>
<td>26.3%</td>
<td>1538</td>
<td>3.25</td>
</tr>
<tr>
<td>Average middle class</td>
<td>6</td>
<td>31.57%</td>
<td>1791</td>
<td>3.35</td>
</tr>
<tr>
<td>Lower middle class</td>
<td>4</td>
<td>21.0%</td>
<td>1123</td>
<td>3.56</td>
</tr>
<tr>
<td>Lower class</td>
<td>3</td>
<td>15.7%</td>
<td>912</td>
<td>3.28</td>
</tr>
<tr>
<td>Total</td>
<td>19</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Sex</th>
<th>No. of Positive Cases (n)</th>
<th>Percentage (%)</th>
<th>Population at risk</th>
<th>Prevalence / 1000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td>11</td>
<td>57.9%</td>
<td>2880</td>
<td>3.81</td>
</tr>
<tr>
<td>Females</td>
<td>8</td>
<td>42.1%</td>
<td>2880</td>
<td>2.77</td>
</tr>
<tr>
<td>Total</td>
<td>19</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Types of School</th>
<th>No. of Positive Cases (n)</th>
<th>Percentage (%)</th>
<th>Population at risk</th>
<th>Prevalence / 1000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government</td>
<td>11</td>
<td>57.9%</td>
<td>2880</td>
<td>3.81</td>
</tr>
<tr>
<td>Private</td>
<td>8</td>
<td>42.1%</td>
<td>2880</td>
<td>2.77</td>
</tr>
<tr>
<td>Total</td>
<td>19</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Table-3:** Prevalence of epilepsy in school going childrens in Kashmir Valley according to their schooling status
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. The prevalence of epilepsy was 10.5% (table 4). In our study higher prevalence of epilepsy was found 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.

The determination of prevalence value and epilepsy-related risk factors make a particular contribution to public health planning. Tellez Zemterno 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 our study the highest prevalence rate of epilepsy was in lower middle class 3.56/1000 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 sherid 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 3.81 per 1000 was found in govt schools as compared to private schools 2.77 per 1000. 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. The determination of prevalence value and epilepsy-related risk factors make a particular contribution to public health planning. Tellez Zemterno 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.

**DISSCUSSION**

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 highest prevalence rate of epilepsy was in lower middle class 3.56/1000 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 sherid 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 3.81 per 1000 was found in govt schools as compared to private schools 2.77 per 1000. 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.

**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 highest prevalence rate of epilepsy was in lower middle class 3.56/1000 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 sherid 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 3.81 per 1000 was found in govt schools as compared to private schools 2.77 per 1000. 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.

**ACKNOWLEDGEMENT**

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

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Source of Support: Nil; Conflict of Interest: None
Submitted: 13-11-2018; Accepted: 05-12-2018; Published: 30-04-2019