

# PREVALENCE OF EPILEPSY IN CHILDREN (A POPULATION SURVEY REPORT)

Pages with reference to book, From 134 To 136

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## ABSTRACT

A population based epidemiologic study carried out in a lower socioeconomic suburb of Karachi, identified 23 children with epilepsy among 994 children (3-9 year old) surveyed for childhood disabilities. Nineteen had major epilepsy, 2 petitmal and one each had focal motor and myoclonic attacks. The high frequency of epilepsy may be due to consanguinity, central nervous system, infections and birth and accidental trauma (JPMA 41: 134, 1991).

## INTRODUCTION

Very few studies on prevalence of disease pattern are available from developing countries which may be because of lack of financial support, lower priority of such studies in the presence of other major diseases and lack of expertise in some countries. Of the few studies on prevalence several will be faulted for either inadequate data collection or defective protocol and methodology. The present paper focuses on the prevalence of childhood disabilities. This project was a combined effort of the Department of Neurology, Jinnah Postgraduate Medical Centre, Karachi and Department of Social Work of Karachi University and supported by UNICEF.

## PATIENTS AND METHODS

The study was conducted in an unselected 'Kachi Abadi' suburban population of Karachi, 20 kilometers from the city centre having a population of 100,000 with representation from all ethnic groups i.e., Kacchi, Balochi, Sindhi, Pushto and Punjabi speaking population. Medical, educational and sanitary facilities were grossly inadequate in this area. There were 30 primary schools, 3 secondary schools but no hospital in this locality. Economic conditions varied but majority were poor. Most people were semi-skilled workers and labourers. This locality had no planned or numbered streets or houses. The township had 20,275 plots of land measuring 80 square yards each; most with semi-permanent construction. For the purpose of this survey the households were allocated plot numbers, and every third such number was listed for the survey. It was estimated that the 430 houses, thus selected, would yield a sample of 1000 children. The survey was divided into three phases. In the first stage a house to house survey was done with a questionnaire eliciting sociodemographic information alongwith the two screening questionnaires comprising of ten questions; targeting on disabilities of vision, learning, motor, speech, retardation and epilepsy (adapted from WHO 10 Questions) and a CDQ (Child Development Questionnaire) containing eventually the same questions but focusing more on mental retardation (Developmental milestones, bowel/feeding habits, language development and a standardized observation of child behaviour, interviewer's observation of the child and cognitive competence.) In the second stage of the study suspects screened positive in first stage were examined by a team of clinical psychologist and a senior neurologist/physician at the field office. In the third phase reassessment was done with E.E.G. tests at the Department of Neurology, Jinnah Postgraduate Medical Centre, Karachi. For this survey epilepsy was defined as recurrent, non-febrile fits or convulsions focal or generalized, jerks, absences or paroxysms of behaviour disorder. In the E.E.G.

test, epileptic pattern was described as a paroxysmal appearance of spike, sharp wave or spike/wave complexes, localized or generalized, as evidence of unequivocal seizure activity. Paroxysmal synchronous high-voltage slow wave discharges were viewed only as suggestive of epilepsy. The interview and screening questionnaire teams comprised of ten interviewers with qualification varying from Masters Degree in Sociology to education upto secondary school level; the latter from the locally inducted residents. All were trained and monitored in the accuracy of the survey and questionnaire. The professional team included one neurologist, one psychiatrist and three clinical psychologists, all with postgraduate qualifications and having very extensive clinical experience.

## RESULTS

The door to door survey began on March 5, 1982 and ended on May 5, 1982. Normally the interviewers were well received in the community, particularly in a family where children had problems. Parents with normal children did not like long interviews, even more so if they had many children. A total of 994 children were surveyed in the present study. The number of households visited were 430. There were no refusals in the field survey. Two hundred suspects were referred to the professional review team, of these there were 43 refusals (21.5%). Age and sex distribution of 994 children (Table I)

**TABLE - 1. Age and Sex distribution**

<b>Age in Years</b>	<b>Males</b>	<b>Females</b>	<b>Total</b>	
3	86	67	153	
4	93	68	161	590
5	79	58	137	
6	77	62	139	
7	71	66	137	
8	76	45	121	404
9	82	64	146	
<b>Total %</b>	<b>564(56.7%)</b>	<b>430(43.2%)</b>	<b>994</b>	

shows slight preponderance of males and slightly higher number of children in the 3-6 years age group as compared to 7-9 years age group. The commonest disability was delayed development (4.6%). Seizures were present in 1.9% children. There was also a considerable overlap of disabilities (Table II).

**TABEL - II. Overall Disabilities**

<b>Disabilities</b>	<b>No (%)</b>
. Delayed Development	46 (4.6)
. Visual Defect	10 (0.9)
. Hearing Defect	21 (2.1)
. Understanding Problem	11 (1.1)
. Motor development delayed	30 (3.0)
. Seizure	19 (1.09)
. Delayed Behaviour	16 (1.6)
. No Speech	21 (2.1)
. Speech Different from others	24 (2.4)
. Slow or dull	31 (3.1)

There were 37 children, suspected on clinical grounds, to have seizures and its related disorders. On professional review an epileptic disorder was diagnosed in 23 children with 19 suffering from major convulsions, other seizure types were uncommon (Table III).

### TABLE - III. Types of Seizure

Types	No of cases
. Tonic-clonic Major Seizures	19
. Petit mal	2
. Focal Seizures	1
. Myoclonic Seizures	1
. Single Convulsion	2
. Febrile convulsion	5
. Doubtful Epilepsy or Syncopal	7
<b>Total:</b>	<b>37</b>

Thirty suspects were referred to the Jinnah Postgraduate Medical Centre for assessment and E.E.G. tests. There were 17 refusals as this phase of the project was viewed with the greatest of suspicion by the community. This large dropout, despite arrangements for transport, assurance and repeated visits, appeared inevitable. Of the 13 who had the test, 2 had unequivocal seizure pattern; 4 had changes suggestive of nonfocal seizures. one had focal abnormality but no seizure pattern; 6 had no abnormality. Among the 30 suspects referred for E.E.G. evaluation, there were two families with multiple sib involvement in the same sibship. In one family of 6 children there were 2 children with major seizure and in the second family of five children there were 4 epileptics.

#### DISCUSSION

There is a fair amount of epidemiological data on epilepsy from developed countries. An excellent review of 30 such reports had been done by Rose et al<sup>1</sup>, who found prevalence rates varying from 1.5 to 150 per thousand. A critical analysis would probably indicate use of different protocols, methodologies and definitions in these surveys<sup>1</sup>. It appears that few epidemiological studies adopted similar definitions and protocols<sup>2</sup>. In Age and the absence of data using identical protocol from various countries a comparative prevalence rate figure for epilepsy is not available for either developed or developing countries. The present paper gives a "total prevalence rate" of 23 per thousand of non-febrile convulsions and other epilepsies; two single convulsions and five febrile cases are classed separately. It is difficult to differentiate between "benign febrile convulsions" and major epilepsy attacks precipitated by fever because of lack of precise details relating to the illness; sometimes determination of "fever" may be impossible. If one includes this doubtful group, the total prevalence rate may be 28 per thousand. This prevalence rate is of 23 per thousand comparable to figures of 27.6 (range 21- 32) per thousand in 8-9 year age group from Chile<sup>3</sup> but they have included febrile convulsions and cases of delete febrile, cases of seizures with E.E.G. changes and positive family history. Response rate for this study is not available. There are two other studies based on identical

criteria viz. 18.6 per thousand prevalence from Washington County (with a response rate of 91%<sup>1</sup> and 9.7 per thousand prevalence from Multomah, Oregon with response rate of 76%<sup>4</sup>. Prevalence study of Carlisle<sup>5</sup> gives an age-specific incidence of 2.03 per thousand (in 0-9 years) in a study based on both medical files and house to house survey method; single convulsions and febrile convulsions were excluded but "all" cases who ever had more than 2 attacks were included in the study. A study on children in Preszki and Ursus, Poland, gives a 8 per thousand prevalence rate in 7-15 age group which included recurrent seizures (epilepsy) only, also single seizures and complicated febrile convulsions and cases registered in specialist medical sources<sup>6</sup>. One epidemiological study on epilepsy in school age children of Modena, Italy in 1968-1973 gives a prevalence rate of 3 per thousand in children of 5-14 age group and includes recurrent seizures, cases registered in the University epilepsy clinic and average point prevalence from 1968-1973<sup>7</sup>. The reasons for this higher prevalence rate of epilepsy in Pakistan may include a number of factors e.g., high incidence of childhood CNS infections, higher birth trauma and a very high consanguinity rate; a third of Pakistan's population is the product of first cousin marriages (unpublished data). Population based studies on these points have not been done in Pakistan and the above statement is only conjectural. In conclusion it is suggested that reliable prevalence studies in developing countries are quite possible if they are small, well structured and include field workers that are familiar with the community and preferably include some motivated medical students. The present paper and the previous work on mental retardation are offered as proof of this assertion.

## REFERENCES

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Epilepsy is a chronic noncommunicable disease of the brain that affects around 50 million people worldwide. It is characterized by recurrent seizures, which are brief episodes of involuntary movement that may involve a part of the body (partial) or the entire body (generalized) and are sometimes accompanied by loss of consciousness and control of bowel or bladder function. Seizure episodes are a result of excessive electrical discharges in a group of brain cells. Different parts of the brain can be the site of such discharges. Seizures can vary from the briefest lapses of attention or muscle j