

# RESEARCH ARTICLE

## DEMOGRAPHY OF PEDIATRIC BEHAVIORAL DISORDERS

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### Abstract:

#### Objective :

Behavioral disorders of children and adolescents have long been a subject of discussion among researchers of pedology, psychology, medicine and psychiatry and are also a commonly encountered complaint of patients referring to the pediatric neurology out patient clinics. The main purpose of the present study is to survey some organic disorders, e.g. temporal lobe epilepsy (non convulsive seizures) and to investigate the role of some trace element deficiencies, in particular iron deficiency on the development of behavioral disorders seen in children.

#### Materials & Methods:

In this study all patients referring to the Imam Khomeini pediatric neurology out patient clinic with the chief complaint of behavioral problems, between October 1996 and January 1998 were enrolled; they were individually interviewed and underwent physical examinations, completing the relevant questionnaires.

#### Results:

Overall 139 patients (92 boys and 47 girls) were enrolled and the data were analyzed using SPSS and Harvard's graphic package. Analysis revealed that the most common behavioral disorders documented were: Sleep problems, in 38 patients (27.3%), Irritability in 37 (26.6%), aggressiveness in 28 (20.1%) staring in 27 (19.4%), altercation in 27 (19.4%). Non psychiatric problem was seen in 77 patients (62.6%); neurological examinations in 36 (25.9%) revealed abnormal findings; 103 patients (74.8%) had abnormal findings in other systems. 105 patients (76.6%) had abnormal EEG and 72 of them (51.9%) had abnormal findings in brain imaging. Iron deficiency was found in 88 (63.2%) of the patients.

#### Conclusion:

According to these findings, treatment of organic disorders in patients with behavioral problems, can lead to partial or total control of their problems, which could otherwise result in major disturbances and disruptions in their own and in their family's lives.

#### Key words:

behavioral problems, EEG, Imaging, Iron deficiency.

### Introduction

The prevalence of various kinds of behavioral disorders in American children is around 2-3% (1). Given the variety of symptoms and signs, there are various definitions for behavioral disorders. According to Kaplan (19,4) the psychiatric definition of behavioral disorders includes various excessive and devious long-standing behaviors like aggressive behavior, sudden excitation, and depressive behavior, which the patient, despite wanting to, cannot control. The behavior is totally unexpected for an observer (2).

Various forms of these behaviors include altercation, aggressiveness, destruction, nail biting, teeth crunching, enuresis, anger, obsession, autism, finger sucking, speech problems, hyperactivity, staring, pica, sudden illogical laughing or crying, masturbation, sleep disorders, learning problems, breath holding, irritability, self mutilation, anxiety, and antisocial behaviors. Like all other disorders, in these cases a search for underlying psychological and organic causes is carried out, and according to the symptoms more attention is focused on psycho-emotional problems rather than on physical ones. However we know now that organic and physical factors play an almost equally important parallel role with psychological factors in the development and onset of these disorders. According to the findings of Martin (3), Iozzef (4), Baxter BS (5), organic factors, have been identified as having an affect on the development of behavioral problems.

### Materials & Methods

This is a descriptive, cross-sectional case-series study. All patients referring to the pediatric neurology outpatient department of the Imam Khomeini Hospital between Oct 1996 and June 1998 were enrolled. Of the files of 2100 patients, 139 with the chief complaint of behavioral problems, were recruited for the study.

Categorization (psychologically-based) of behavioral disorders include:

- \* Healthy responses to personal and social problems (irritability, isolatedness)
- \* Reactive or transient adaptive disorders (sleep disturbances, pica, body manipulation, verbal disorder, phobias).
- \* Psychoneurotic disorders (anxiety, malingering, obsession, fear, enuresis, hysteria, tics.
- \* Psychosomatic disorders.

- \* Personality disorders (spitefulness, insolence, lying, theft, drug abuse)

- \* Growth deviations

- \* Cerebral syndromes

- \* Mental retardation

- \* Psychotic disorders (schizophrenia, mania, autism)

Each patient and his/her family were interviewed for approximately 45 minutes; they underwent physical and neurological examinations and completed the related questionnaires. EEG, brain imaging (CT, MRI) and Ferritin assessment were done for all the patients in the adult neurology department of Imam Khomeini Hospital and author's outpatient clinic. All data gathered were analyzed by SPSS for M.S windows. For the chart and diagrams the Harvard graphics package was used.

### Results

Of 2100 patients, 139 cases between Oct 1996 and Jan 1998 had the inclusion criteria for the study (chief complaint-behavioral problem). 60 (43.2%) of patients were between 5-10 years, similar to other studies (1,5,6). Of the 139 patients, 92 (66.2%) were boys and 47 (33.8%) were girls.

It was found that the most common behavioral disorders in this group of patients were sleep disorders in 38(27.3%), irritability in 37 (26.6%) and aggressiveness in 28 (20.1%); this was different to other surveys, in which hyperactivity had been reported to be the most common problem (6,7,1)

Only 11.5% of parents had higher education, a factor highly effective in curtailing stress for the prevention of childhood behavioral problems. 82 cases (59%) had a family history of the same condition, as seen in similar surveys where genetic and family factors were also shown to be involved (8). In 100 cases (66.9%), some sort of abnormal physical finding, was observed. 35(25.2%) had suffered some problem during their neonatal period. There was psychomotor retardation in 53(38.1%). - In 36 (25.9%) neurological examination revealed abnormal results. We found abnormal EEG including multispikes wave, spike slow, in 96(76.6%) and abnormal brain CT scan, mostly brain atrophy, in 72(51.9%)

Low serum Ferritin levels were found in 87 (63.2%) patients.

### Discussion

Behavioral disorders are commonly found in pediatric, pediatric neurology and pediatric psychiatry, out - patient departments; the incidence varies between 5 to 12% in different references. (1)

Many times we think about psycho- emotional predisposing factors and ignore organic ones of them. In this study we have revealed that first of all in our patients, sleep disorders and irritability are more common than hyperactivity, unlike many other studies, and secondly, there are organic disorders e.g. other system involvement , as well as abnormal EEG and brain CT scan in parallel with emotional and environmental factors that was seen instrumental in behavioral disorders . Polite and Idgradinata (9) and Soewondo (10) in a study in Indonesia showed that 176 children between 3-6 years of age with iron deficiency anemia, had learning disorder , speech problem, inattentiveness, low intelligence, visual acuity and conceptual problems in different degree which have achieved significant improvement after 8 weeks treatment with iron compounds. Our study has investigated several factors and demonstrated the importance of evaluating organic as well as psycho-emotional factors to gain a better understanding of behavioral disorder. In our study there was low serum ferritin level in 88 patients(63.2%) which responded to 2 mg/kg/day ferrous compounds for 8 weeks in 92.3% of them .

In the other word, our patients who presented themselves with behavioral problems associated with iron deficiency anemia were treated with iron supplements which the detail of our interventional Iron therapy will be presented in future publications.

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