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Original Research Article

Behavioral Disorder in Children Attending Tertiary Care Teaching Hospital: A Prospective Observational Study

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Abstract

Aim and Objective: The present study was undertaken to determine the incidence of behavioral problems in pediatric patients and correlate with socio-demographic profile, parent's education, parental illness and family structure. Also, to study impact of behavioral problem in due form of social impairment, distress, burden to others and chronicity as perceived by parents.
Method: Total 600 children (age 5-12 years) from pediatric outpatient or inpatient department were screened by using Strength and Difficulty Questionnaire (SDQ). Interview of parent or guardian include questionnaire was done to assess the behavioral problems. Patients identified to have behavioral problems was referred to the psychiatry department for further evaluation and management and then followed for 3 months and outcome was recorded.
Results: The incidence of behavioral disorder in outdoor patients was 7.56% and in indoor patients was 6.67%. In both the outdoor and indoor patients analysis behavioral disorders were showed strong association with social impairment (OPD=82.35%, IPD=70%), family distress (OPD=85.29%, IPD=70%), burden to others (OPD=79.41%, IPD=60%) and chronicity (OPD=61.76%, IPD=60%). There was no correlation found between behavioral disorders and parental education, family structure in both indoor and outdoor patients' analysis. Among indoor patients, 46.67% needed pharmacological treatment, 20% required counseling, 13.33% were given special education, and about 20% patient did not require any treatment. In outdoor patients analysis 19 patients improved markedly and 3 improved minimally, 35.29% patients did not show any improvement till 3 months follow up.
Conclusion: Early reorganization and prompt intervention can improve outcome of patients with behavioral problems. This would help in reducing morbidity associated with behavioral disorders.
Keywords: Behavioral problems, Strength and Difficulty Questionnaire, Outdoor, Indoor, Chronicity.

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1. Introduction

Behavioral disorder are prevalent in pediatric population with prevalence rate of 12-27% yet detection rate of these problems is much lower [1]. Although identification may be improving, under identification and limited referral for mental health services remain a significant problem. Families in addition often do not disclose behavioral health concerns about their child to their physician. Multiple barriers exist for successful screening, including lack of training, limited time and poor reimbursement. Failure to identify and more crucially, to effectively treat mental health problems during childhood has many potentially serious long term negative outcome like continued distress for the child and family, more frequent use of health care services, poorer adherence to treatment recommendations for physical health problem into adult hood [2].

Children with chronic illness have increased rates of mental health problems and psychological difficulties often present as physical conditions [3]. Sometimes a child's 'Symptoms' are in fact the presenting symptoms of a family problem. Children may become anxious, depressed

or behaviorally disturbed as a result of marital conflict, parental illness, dissocial behavior or other pathologies within the home [4].

It has been suggested that behavioral screening using standardized instruments or Diagnostic and Statistical Manual –V (DMS V) criteria or International Classification of Diseases-10 (ICD-10) criteria be instituted at health care clinics to improve the detection rate of mental health problems in children and enhance the rate of referrals to mental health providers [5-7]. By definition, the goal of screening is to identify those at high risk for having significant behavioral concerns and who might benefit from receiving additional evaluation or referral. This may be accomplished through mass screening or selective screening of those considered being at high risk. Several reviews have provided guidelines for selecting behavioral screening measures and implementing screening strategies in primary care setting [8,9].

The purpose of this study was to determine the incidence of a behavioral disorders in pediatric population (5-12 years) attending a tertiary care teaching hospital are at increased risk of suffering from emotional and behavioral disturbance and whether there is an unmet need for psychiatric liaison to pediatric clinics.

2. Material and Methods

After obtaining Institutional Ethical Committee approval, the present prospective observational study of screening of patients attending tertiary care teaching hospital was carried out over a period of 2 years. During this period 450 patients from outdoor patients and about 150 patients from indoor patients were enrolled after obtaining consent in our screening program by using SDQ [10]. Patients with absence of severe neurological or development abnormality e.g. mentally retarded, children with cerebral palsy, post encephalitis neurological sequel etc, patients having age >5 years and< 12 years and who come for acute and chronic illness were included in the study. Exclusion Criteria were patients with severe neurological or developmental abnormality, previously diagnosed patients with behavioral or psychological abnormalities, patients having age< 5 years and parents or guardian refusing consent to participate.

The parent or guardian were administered the strengths and difficulties questionnaire (SDQ).The interview of parent or guardian was done which lasting for about 20 minutes and was include questionnaire to assess the behavioral problems. The scale used was strengths and difficulties questionnaire (SDQ) which has 5 scales- 1) Emotional symptoms, 2) Conduct problems, 3) Hyperactivity / Inattention, 4) Peer relationship problems and 5) Pro-social Behavior. The scale also assesses the impact of the problem in terms of chronicity, distress, social impairment and burden to others, etc. Patients identified to have behavioral problems was referred to the psychiatry department for further evaluation and management and then followed for 3 months and outcome was recorded. The personal and socio-demographic data was recorded in predesigned proforma.

3. Results

A total of 600 patients from pediatric outpatient or inpatient department were screened by using Strength and Difficulty Questionnaire (SDQ). Among the outdoor patients (450 patients), 246 were males and 204 were females while among the indoor patients (150 patients) 93 were males and 57 were females. Out of outdoor patients screened 34 (7.56%) were conformed to have behavioral disorders with 12 females and 22 males, similarly, out of indoor patients screened 10 (6.67%) were conformed to have behavioral disorders with 5 females and 5 males without any gender predominance. Behavioral disorders were studied for age distribution in OPD and in IPD patients were found to have mean age of 8.8 and 8.9 years respectively. Table 1 show the diagnosis of outdoor and indoor patients.

Table 1: Distribution of Outdoor and Indoor patient's diagnosis

Diagnosis	OPD Patients	IPD Patients
No Psychiatric disease	416 (92.44%)	140 (93.33%)
ADHD	10 (2.22%)	2 (1.33%)
ADHD & mild MR	1 (0.22%)	
Autism with ADHD	1 (0.22%)	
BIF	5 (1.11%)	3 (2.00%)
BIF with adjustment disorder with depressed mood	1 (0.22%)	
BIF with enuresis	1 (0.22%)	
BIF+Adjustment disorder with depressed mood	1 (0.22%)	
BIF+with conduct traits	1 (0.22%)	
Learning Disability	3 (0.66%)	
Mild MR	6 (1.33%)	1 (0.67%)
Mod.MR	1 (0.22%)	
Nocturnal enuresis	1 (0.22%)	
ODD	1 (0.22%)	
Secondary depression	1 (0.22%)	
Depression	-	2 (1.33%)
MR with epilepsy with hyperactivity	-	1 (0.67%)

ADHD-Attention Deficit Hyperactivity Disorder, MR-Mental Retardation, BIF-Borderline Intellectual Function, ODD-Oppositional Defiant Disorder

Chronic physical illness was associated with behavioral disorders than acute physical illness in both outdoor and indoor patients' analysis. In OPD patients' analysis, out of 34 diagnosed behavioral disorder patients 26 approached pediatrician first 1 approached psychiatrist first and 1 approached both simultaneously whereas analyzing data of IPD patients, out of 10 diagnosed behavioral disorder patients all approached pediatrician first and none approached psychiatrist. Analysis of OPD patients for standard wise incidence of behavioral problem did show that illiterate children were having high incidence of behavioral problem i.e.5 out of 7 children not going to school were suffering from behavioral disorder. Analysis of IPD patients for school standard wise incidence of behavioral problem did not show any specific correlation. Family structure either nuclear or joint was not found to have any association in our study. Number of sibling were studied for association of behavioral disorders and it was found to be significant, (p= 0.018) in outdoor patient while it was not found any significance in indoor patients. There was no correlation fond between behavioral disorders and parental education in both indoor and outdoor patients' analysis. Family problems like parental illness, marital discord, and single parent were associated with higher incidence of behavioral disorders. Statistically analyzing association of socioeconomic class and behavioral disorders were found to have significant association (p=0.02) in OPD patients analysis while socioeconomic class as per Kuppuswami's scale were not found to have any association with behavioral disorders in IPD patients analysis.

In OPD analysis behavioral disorder were showing stronge association with social impairment,family distress, burden to others and chronicity while in IPD analysis the majority of behavioral disorders had an impact on patient and family in form of social impairment, family distress, burden to others and chronicity, (Table 2).

Table 2: Impact of behavioral disorder in Outdoor and indoor patients

Impact of behavioral diorder	Outdoor patients		Indoor Patients	
	Yes	No	Yes	No
Social impact	28 (82.35%)	6 (17.64%)	7 (70%)	3 (30%)
Family distress	29 (85.29%)	5 (14.70%)	7 (70%)	3 (30%)
Burden to others	27 (79.41%)	7 (20.28%)	6 (60%)	4 (40%)
Chronicity	21 (61.76%)	13 (38.23%)	6 (60%)	4 (40%)

Treatment given to outdoor patients with behavioral disorders was shown in figure 1 (a) and treatment given to indoor patients with behavioral disorder was shown in figure 1 (b). After intervention in form of either medical treatment, cognitive or behavioral therapy or special education for patients outcome/improvement in the patients were observed as shown in figure 2.

Figure 1 : Treatment given to outdoor (a) and Indoor (b) patients with Behavioral Disorder

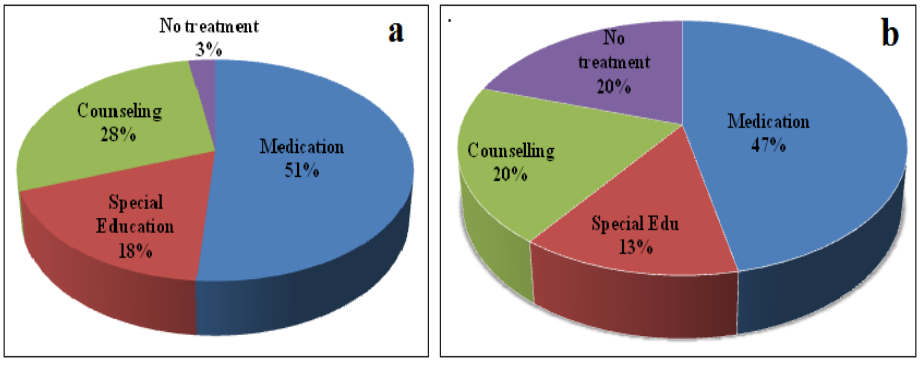
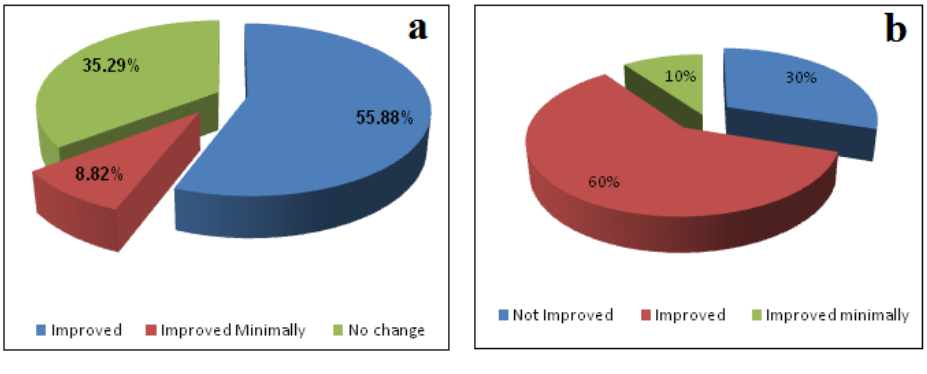


Figure 2: Outcome of patients with behavioral disorders in outdoor (a) and indoor (b) patients



4. Discussion

In the present study total 600 patients were enrolled from outdoor and indoor department. In outdoor patients we screened 450 patients of which 34 were confirmed to have behavioral disorders thus incidence of about 7.56% and for Indoor patients we screened about 150 patients of which 10 were diagnosed to have behavioral disorders with incidence of 6.67%, this results was correlated with the study done by Weitzman *et al* [1] and Hacker *et al* [11]. Pediatric setting holds the potential to be an optimal environment to address behavioral health concerns due to frequent contact and trusted relationship many families have with their pediatrician. There is new evidence that screening can be thoughtfully implemented and that detection of behavioral problems is possible [1]. Present study also showed that pediatrician was the first to be approached by families for any deviation in behavior of a child. In Outdoor patients study 26 out of 34 patients with behavioral problems first came to pediatrician and in Indoor patients all 10 patients first visited pediatrician, suggesting that SDQ could be added to routine pediatric assessment to aid appropriate referral of Children with possible psychiatric disorders to child mental health Services.

Jellinek *et al* [12] showed routine use of brief psychosocial screening instruments has been proposed as means of improving reorganization, management and referral of children with psychosocial morbidity in primary care. After studying association of socioeconomic class in outdoor patients with incidence of behavioral disorders significant 'p' value =0.02 was found i.e. 32 out of 34 patients with behavioral disorders were belonging to lower middle, upper lower, and lower by kuppuswami's scale. Analysis of indoor patients' data for checking association of socioeconomic status on incidence of behavioral problems showed no significant correlation with 'p' value more than 0.05.Trembaly *et al* [13] studied association of low family income with high incidence of behavioral problem like physical aggression in childhood which was corresponding to current study. Jellinek *et al* [12] showed that children from low income families were twice more likely to be scored dysfunctional on pediatric symptom checklist than were children from higher income families.

Correlation of parental education with behavioral disorders was studied i.e. mother's and father's education were grouped into illiterate, primary education, secondary education and more than secondary was checked for any association [14-16] but no such association was found in both indoor patients and outdoor patients analysis. Glascoe *et al* [17] showed that parents concerns are as accurate as screening test and parents are equally able to raise important concern regardless of differences in education. In present study of screening of behavioral disorders no association was found between number of siblings and incidence of behavioral problems in indoor patients and in outdoor patients analysis association between increasing sibling number and behavioral disorders was found showing that previous rearing practices may or may not have impact on incidence of behavioral problems. As per study by Glascoe *et al* [17] showed that parental concerns can help to make important decisions about children's developmental and behavioral needs irrespective of their child rearing experience.

Pediatric patients were screened using SDQ and those with abnormal scores were forwarded to psychiatrist for final opinion, 43 patients with abnormal or borderline SDQ scores were analyzed of total 450 outdoor patients of which 34 were found to have behavioral problems thus incidence of 7.56% with ADHD being most common problem i.e.2.66% incidence, Borderline intellectual function in 1.99%, Mental retardation in 1.55%, Learning disabilities in 0.66%, followed by nocturnal enuresis, Oppositional Deviant Disorder, Secondary depression with incidence of 0.22% each. We included 150 indoor patients of which 18 were found to have abnormal or borderline scores were send for psychiatrist analysis and 10 were confirmed to have behavioral disorders thus incidence of 6.67% with borderline intellectual function being most common problem with incidence of 2%, ADHD being next common i.e.1.33%,Depression in1.33%,mental retardation in 1.34%,wilson's disease in 0.67%.

George *et al* study [18] reported 33% patients in the abnormal and 14% patients in borderline categories. In the Malaysian population, the statistics in the abnormal category showed 80% as reported by Pandiyan and Hedge [19]. These values vary depending on the instrument and the study design used. Screening tools yield higher results, whereas diagnostic interviews of the screened population often result in lower estimates [18]. A similar study performed in Karachi, Pakistan, showed 34% of children in the abnormal category [20]. All the above studies reported higher abnormal or borderline SDQ scores than our study (Overall 10.16%).

In outdoor pediatric patient analysis behavioral disorder are showing strong association with social impairment in 82.35% patients, family distress in 85.29%, burden to others in 79.41% and chronicity in 61.76%. Analysis from indoor patients shows that majority of behavioral disorders had an impact on patient and family in form of social impairment in about 70%, family distress in 70%, burden to others in 60% and chronicity in 60% patients.

In OPD analysis, 51.28% patients required medications, 17.95% needed special education, about 28.21% were counseled and 2.56% needed no treatment while in IPD analysis about 46.67% patients needed pharmacological treatment, 20% required counseling, 13.33% were given special education, and about 20% patient did not require any treatment. However, in outdoor

patients analysis 19 out of 34 patients improved markedly and 3 out of 34 improved minimally showing that 64.70% patients improved due to early intervention after early diagnosis, 35.29% patients did not show any improvement till 3 months follow up suggesting that early intervention can improve outcome of patients with behavioral problems. In indoor patients analysis, 60% patients improved markedly, 10% improved minimally and 30% did not improved at all. Riley *et al* [2] showed that failure to identify and effectively treat mental health problems during childhood has many potentially serious long term negative outcomes like continued distress for the child and family, more frequent visits to health care services, poorer adherence to treatment recommendations for physical health problems, and the persistence of mental health problems into childhood.

5. Conclusion

Use of SDQ as a reliable screening tool for diagnosis of behavioral disorders is possible during routine pediatric consultation. Early recognition and prompt intervention can improve outcome of patients with behavioral problems. It was found that significant number of early detection of behavioral problem was possible with minimal interventions before severe psychosocial impairment occurs. This would help in reducing morbidity associated with behavioral disorders.

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