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Original Article

Psychiatry Section

Clinico-Epidemiological Profile of Psychiatric Disorders Among Children in a Tertiary Care Hospital of Southern India

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ABSTRACT

Introduction: According to the World Health Organization (WHO), mental health disorders are one of the leading causes of disability worldwide and it is as common in children. Anywhere between one to three children may be suffering from psychiatric disorders at any point in time.

Aim: This study intended to find the pattern of psychiatric disorders and associated sociodemographic factors among children attending the psychiatric department in a tertiary care hospital in Southern India.

Materials and Methods: An analysis was conducted of patients who attended the psychiatric clinic from April 2012 to March 2013. Disorders were classified according to International Classification of Diseases, 10th edition (ICD-10) criteria. Data obtained was analysed by SPSS 11.5 version. Chi-square test was used to see association and p<0.05 was taken as significant.

Results: The mean age of the children was 10.9 years (SD=4.3). Predominance of males was noticed. It was seen that the male children, mostly suffered from Pervasive and specific developmental disorders (n=105; 31.1%). While in the female children, a prominence of anxiety, dissociative, stress-related, somatoform and other non-psychotic mental disorders was seen (n=52; 27.1%). Co-morbidity of psychiatric disorders was seen with intellectual disability and a seasonal predominance of psychiatric disorders was seen during autumn.

Conclusion: Children presenting with psychiatric disorders in the hospital showed a wide age range and among them, males outnumbered females. Psychiatric disorders showed seasonal variation and the types of disorder varied significantly with age, gender and religion.

Keywords: Age, Disorder, Gender, Paediatric, Religion, Season, Variation

INTRODUCTION

Child and adolescent psychiatric disorders are an upcoming problem worldwide, but many times they go unobserved by a parent, especially in a developing country like India with a total fertility rate of 2.5 [1]. As much as 12% to 29% of the children aged 5-15 years have been found to be suffering from some kind of psychiatric morbidity in different countries including India [2]. Some of the commonest disorders among children who come to the psychiatric clinic have been found to be intellectual disability, emotional disorders and somatic complaints [1,3,4]. However, in community based studies, the most common disorder has been found to be conduct disorders [5,6]. Gender predilection seems to vary in different areas so did age-wise predominance of various disorders. One of the studies in Bangalore found the commonest diagnosis among children aged less than 5 years to be hyperkinetic disorder, among 6-11 year it was hysterical neurosis and among 12-16 years it was psychosis [7]. Thereby indicating that regional differences in psychiatric morbidity are expected, making it essential to trace a pattern in every region of the country. Such awareness can help the health care personnel to be alert, thus resulting in early & correct detection and proper management. It will also aid in formulating prevention and control programmes.

AIM

Hence this study was planned to find the pattern of psychiatric disorders and associated socio-demographic factors among children in the psychiatric clinic of a tertiary care hospital in Mangalore city, India.

MATERIALS AND METHODS

This analytical study was conducted in a tertiary care hospital during the period of April 2012 to March 2013 from the case records of children visiting the psychiatric department. The records contained detailed histories obtained from the patient and the parents with relevant investigations done, wherever needed. Disorders were classified according to International Classification of Diseases, 10th edition (ICD-10) criteria [8]. Data obtained was analysed by SPSS 11.5 version. Descriptive analysis was done, Chi-square test was used to see association between psychiatric disorders and socio-demographic factors, and p<0.05 was taken as statistically significant.

RESULTS

There were a total of 530 patients who attended the psychiatry department, out of which there were 338 (63.8%) boys and 192 (36.2%) girls, most of which were referred from the paediatrics department. The mean age of the children was 10.9 years (SD=4.3) with the minimum age of 2 years and a maximum of 19 years. The socio-demographic profile of the patients showed that most of the children belonged to the age group of 10 and 12 years, were predominantly males and Hindu was the most common religion [Table/Fig-1].

	Male	Female	Total
Age group			
<6years	56(70.9)	23 (19.1)	79 (100)
6-9years	86 (74.1)	30 (25.9)	116 (100)
10-12years	91 (67.4)	44 (32.6)	135 (100)
13-15years	66 (61.7)	41 (38.3)	107 (100)
16-19years	39 (41.9)	54 (58.1)	93 (100)
Religion			
Christian	37 (56.9)	28 (43.1)	65 (100)
Hindu	192 (61.5)	120 (38.5)	312 (100)
Muslim	109 (71.2)	44 (28.8)	153 (100)
Total	338 (63.8)	192 (36.2)	530 (100)

[Table/Fig-1]: Socio-demographic profile of the patients.

The most commonly seen disorder was specific developmental disorder of scholastic skills 15.8% (n=84) followed by intellectual disability 11.7% (n=62). Attention-deficit hyperactivity disorder was seen in 8.3% (n=44) and 7.4% (n=39) showed conduct disorder. A 13.4% (n=71) of the patients did not have specific diagnosis [Table/Fig-2].

Relationship of socio-demographic variables with Psychiatric Disorders. The study showed statistically significant association between the psychiatric disorders and factors such as age, sex, religion, seasons, number of sibling etc [Table/Fig-3-6].

ICD 10	Diagnosis		n	%
F10-F19	Mental and behavioural disorders due to psychoactive substance use			
	F17	Nicotine dependence	2	0.4
F20-F29	Schizophrenia, schizotypal, delusional, and other non-mood psychotic disorders			
	F20	Schizophrenia	9	1.7
	F22	Delusional disorder	1	0.2
	F23	Brief psychotic disorder	6	1.1
F30-F39	Mood [affective] disorders			
	F30	Manic episode	6	1.1
	F31	Bipolar disorder	3	0.6
	F32	Major depressive disorder, single episode	20	3.8
F40-F48	Anxiety, dissociative, stress-related, somatoform and other nonpsychotic mental disorders			
	F40	Phobic Anxiety disorder	1	0.2
	F41	Other anxiety disorders	19	3.6
	F42	Obsessive compulsive disorder	21	4.0
	F43	Reaction to severe stress and adjustment disorder	22	4.2
	F44	Dissociative and conversion disorder	17	3.2
	F44.5	Conversion disorder with seizures/convulsions	13	2.5
	F45	Somatoform disorder	7	1.3
F50-59	Behavioural syndromes associated with physiological disturbances and physical factors			
	F51	Sleep disorder not due to substance abuse or physiological condition	3	0.6
F60-F69	Disorders of adult personality and behaviour			
	F60	Specific personality disorder	3	0.6
	F60.3	Borderline Personality disorder	8	1.5
	F65.3	Voyeurism	1	0.2
F70	Intellectual disabilities			
	F70	Intellectual disability	62	11.7
F80-F89	Pervasive and specific developmental disorders			
	F80	Specific developmental disorders of speech and language	7	1.3
	F81	Specific developmental disorders of scholastic skills	84	15.8
	F84	Pervasive developmental disorders	22	4.2
	F84.9	Pervasive developmental disorder, unspecified	10	1.9
F90-F98	Behavioural and emotional disorders with onset usually occurring in childhood and adolescence			
	F90	Attention-deficit hyperactivity disorders	44	8.3
	F91	Conduct disorder	39	7.4
	F93	Emotional disorders with onset specific to childhood	16	3.0
	F95	Tic disorder	1	0.2
	F98	Other behavioural and emotional disorders with onset usually occurring in childhood and adolescence	4	0.8
	F98.3	Pica of infancy and childhood	1	0.2
F99	Unspecified mental disorder			
	F99	Undiagnosed	71	13.4
		Others	7	1.3
		Total	530	100.0

[Table/Fig-2]: Frequency of psychiatric morbidity according to ICD 10 classification.

Disorder	Age (years)					
	<6	6-9	10-12	13-15	>=16	Total
Anxiety, dissociative, stress-related, somatoform and other non-psychotic mental disorders	7(7.0)	10(10.0)	27(27.0)	28(28.0)	28 (28.0)	100 (100)
Intellectual Disability	15(24.2)	17(27.4)	17(27.4)	7(11.3)	6(9.7)	62 (100)
Pervasive and specific developmental disorders	22(17.9)	34(27.6)	38(30.9)	24(19.5)	5(4.1)	123 (100)
Behavioural and emotional disorders with onset usually occurring in childhood and adolescence	24(22.9)	31(29.5)	29(27.6)	14(13.3)	7(6.7)	105 (100)
Others	0(0)	5(7.2)	9(13.0)	22(31.9)	33(47.8)	69 (100)
Undiagnosed	11(15.5)	19(26.8)	15(21.1)	12(16.9)	14(19.7)	71 (100)
Total	79(14.9)	116(21.9)	135(25.5)	107(20.2)	93(17.5)	530 (100)

[Table/Fig-3]: Diagnosis according to age group.
χ^2=126.7, p<0.001

	Hindu	Muslim	Christian	Total
Anxiety, dissociative, stress-related, somatoform and other non-psychotic mental disorders	72(23.1)	22(14.4)	6(9.2)	100(18.9)
Intellectual Disability	33(10.6)	24(15.7)	5(7.7)	62(11.7)
Pervasive and specific developmental disorders	71(22.8)	32(20.9)	20(30.8)	123(23.2)
Behavioural and emotional disorders with onset usually occurring in childhood and adolescence	55(17.6)	39(25.5)	11(16.9)	105(19.8)
Others	46(14.7)	13(8.5)	10(15.4)	69(13.0)
Undiagnosed	35(11.2)	23(15.0)	13(20.0)	71(13.4)
Total	312(100)	153(100)	65(100)	530(100)

[Table/Fig-4]: Diagnosis according to religion.
χ^2=23.5, p<0.009

	Male	Female	Total
Anxiety, dissociative, stress-related, somatoform and other non-psychotic mental disorders	48(14.2)	52(27.1)	100(18.9)
Intellectual Disability	33(9.8)	29(15.1)	62(11.7)
Pervasive and specific developmental disorders	105(31.1)	18(9.4)	123(23.2)
Behavioural and emotional disorders with onset usually occurring in childhood and adolescence	77(22.8)	28(14.6)	105(19.8)
Others	31(9.2)	38(19.8)	69(13.0)
Undiagnosed	44(13.0)	27(14.1)	71(13.4)
Total	338(100)	192(100)	530(100)

[Table/Fig-5]: Diagnosis according to gender.
χ^2=53.4, p<0.001

Among disorders, pervasive developmental disorder was most common in the age group of 10-12 years, anxiety and related disorders were most common among age group above 13 years and behavioural disorders was most common among the younger age group of 6-9 years. Intellectual disability was equally common among 6-9 and 10-12 years age group.

The most common religious background of the children who had reported to the psychiatric OPD was Hindu (58.9%), followed by

	Spring	Summer	Autumn	Winter	Total
Anxiety, dissociative, stress-related, somatoform and other non-psychotic mental disorders	23(20.2)	25(16.8)	26(17.4)	26(22.0)	100(18.9)
Intellectual Disability	8(7.0)	23(15.4)	23(15.4)	8(6.8)	62(11.7)
Pervasive and specific developmental disorders	29(25.4)	28(18.8)	31(20.8)	35(29.7)	123(23.2)
Behavioural and emotional disorders with onset usually occurring in childhood and adolescence	24(21.2)	27(18.1)	33(22.1)	21(17.8)	105(19.8)
Others	18(15.8)	17(11.4)	19(12.8)	15(12.7)	69(13.0)
Undiagnosed	12(10.5)	29(19.5)	17(11.4)	13(11.0)	71(13.4)
Total	114(100)	149(100)	149(100)	118(100)	530(100)

[Table/Fig-6]: Diagnosis according to season.
χ^2=21.0, p<0.136

Muslims (28.9%). Among Hindus, the most common disorders were anxiety and dissociative stress related, somatoform and other non-psychotic mental disorders at 23%; and among Muslim children, it was behavioural and emotional disorders at 25%. Among Christians, pervasive and specific developmental disorders were most common with 22.8%.

Most common disorders among male children were pervasive and specific developmental disorders (n=105; 31.1%), behavioural and emotional disorders (n=77; 22.8%) and anxiety, dissociative, stress-related, somatoform and other non-psychotic mental disorders (n=48; 14.2%). While in the female children, a prominence of anxiety, dissociative, stress-related, somatoform and other non-psychotic mental disorders was seen (n=52; 27.1%)

Overall, the number of cases reported in the summer and autumn months were higher as compared to winter and spring. Pervasive and specific developmental disorders were seen mostly in the winter and autumn. Autumn showed a peak in reports of behavioural and emotional disorders. Anxiety, dissociative, stress-related, somatoform and other non-psychotic mental disorders were observed to be at a high in autumn and winter too. However, this difference was not statistically significant.

A total of 18 children were seen having two or more psychiatric disorders. A common co-morbidity accompanying psychiatric disorders was Intellectual disability, seen in 7 of the children; and it was commonly seen along with specific learning disorders. Emotional and conduct disorder were seen together in two children.

DISCUSSION

The study was aimed at determining the clinical and epidemiological correlations of child psychiatric disorders to help clinicians and health care workers with the diagnostic process and management. The present study showed that the most common disorders were pervasive developmental disorders and behavioural & emotional disorders, whereas, a study conducted in Goa showed that the most common diagnoses were anxiety disorders, depressive disorder, behavioural disorder and attention-deficit hyperactivity disorder. This could be attributed to the difference in upbringing religious practices in that area [9]. Anxiety, dissociative and related disorders were more common among the age groups of 13 years and above, and this was seen in another study too where phobic disorders were most common among adolescents [10]. It has been stated that the behavioural and emotional problems in children may differ according to cultural context and the present study corroborates the same. The small number of cases witnessed below the age of six years could be attributed to the poorly developed psychiatric structure for those age groups in countries like India, unlike the West where a referral to the clinic from a preschool teacher, parent or paediatrician regarding an emotional or behavioural psychiatric disorder is considered normal. Moreover, the incapability of a child to communicate and express thoughts visibly during those ages may be an aspect as to why parents or teachers aren't able to recognise an abnormality. A large number seen amongst adolescents may be due to the universal struggle of a teenager battling parents, peers and education, while trying to develop one's own personality. While some parents manage the issue with skill, others do not understand the problem, thus leading to a visit to a counsellor/ psychiatrist [11]. Psychiatric disorders were seen more in the male child. This could be due to psychological and biological factors since attention is mostly concentrated to the male child in a typical Indian family and parents notice abnormal behaviour in them earlier than in female children, resulting in prompt identification [12,13].

Psychiatrist George Engel's bio psychosocial model for medicine recommends that psychiatrists give attention to social and cultural dimensions of their patients' illnesses [14]. Hindu predominance seen in the cases reporting to the OPD is reflective of the religious distribution of the general population in the city and the state. One limitation in our study was the inability to go to depths regarding the religious correlation of each patient's problem mainly due to the record based nature of our study, considering some mental illnesses are known to be associated with hyper-religiosity and belief [15]. According to a study conducted in Korea, Catholics seemed to show an increase in depression and anxiety compared to Buddhists and Atheists [16]. Along with religion, socioeconomic status and poverty also plays an important role which is highly associated with schizophrenia and antisocial behaviour [5], which is a factor which hasn't been considered in this study.

Seasonal variation of disorders showed that there was an increase in psychiatric diagnoses made during autumn. An association of weather and its effects on the child's performance can be made, especially in terms of pervasive and specific developmental disorders. Most of the depression cases were in the adolescent age group and this may be indicative of starting of Seasonal Affective Disorder (SAD) in them. It is said to be present when there is seasonal pattern to depression at the same time every year and is it improves with light therapy [17].

The present study showing co-morbidity of psychiatric disorders with Intellectual disability was also found by other studies conducted by Shrestha and Emerson [18,19]. The high prevalence of behavioural and emotional disorder is in congruence with findings of Regmi et al., and Pokharel et al., who reported prevalence of 23.59% and 25.58% respectively [20,21]. In our study, 8.3% of patients received a diagnosis of ADHD, which was slightly lower than the number of children diagnosed in the study from Pune [20].

LIMITATIONS OF THE STUDY AND AVENUES FOR FURTHER RESEARCH

Being a hospital based study; it has its limitations of not being representative of the community. Since it was a record based study; many factors could not be studied like socio-economic status, presence of a positive family history, previous stressors present in the child such as surgery or other diseases, which could have a relationship with the presence of a psychiatric condition.

CONCLUSION

The findings of this study from a tertiary care hospital in Mangalore showed that children of all ages came with psychiatric problems. There was a male predominance and the most common disorder was pervasive and specific developmental disorders prominently seen amongst adolescents. Seasonal increase of anxiety, dissociative, stress-related, somatoform and other non-psychotic mental disorders in autumn and winter was seen. These not only throws light on the variation of disorders pattern, but also help

health care workers in further enhancing their skill for diagnosis of children.

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