Research Article

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To study the prevalence of depression and effect of home environment on depression among school going children

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ABSTRACT

Background: Stable mental health is essential for children's health and well-being. Among all the childhood mental disorders most frequent is the early onset major depressive disorder (M.D.D.), which is a burden for both the individual and the society. Childhood depression can lead to increased risk of poor academic performance, impaired social functioning, suicidal behavior, homicidal ideation, and alcohol/substance abuse. Keeping this in mind present study was planned to study the prevalence of depression in school going children and effect of home environment on depression.

Methods: This study was done by Department of Paediatrics, S. P. Medical College, Bikaner, Rajasthan, India in collaboration with Department of Psychiatry S. P. Medical College, Bikaner, Rajasthan, India. School children included in the study were screened by a screening tool CES-DS to pick up the probable cases of depression and final diagnosis of M.D.D. was made according to DSM-IV-TR criteria.

Results: In our study prevalence of depression was found 2.33% in 6-12 year old school going children. Depressed children showed very high level of social isolation, deprivation of privileges, rejection and punishment in their home environment.

Conclusions: Childhood depression is not an uncommon disorder. Home conditions like social isolation, deprivation of privileges and rejection have negative effect and protectiveness, nurturance and permissiveness have positive effect on depression.

Keywords: MDD, CES-DS, DSM-IV-TR, HEI

INTRODUCTION

Burden of mental disorders is increasing in modern societies. According to forecasts, in the next decade in the countries of the European Union one in every four people, including children, will suffer from a mental disorder. Mental health is an essential component in child development, and yet it is one of the most underevaluated and under-appreciated developmental domains in children's health. It is widely accepted that robust and stable mental health is essential for children's health and well-being. Thus, the lack of research on children's mental health is of great concern.

Depression is a common mental disorder that presents with depressed mood, loss of interest or pleasure, feelings of guilt or low self-esteem, disturbed sleep or appetite, low energy, and poor concentration.¹

Depression is one of the leading causes of disability worldwide, contributing to high medical expenditures, poor clinical outcomes, low productivity, and compromised quality of life. Followed by heart disease it is expected to be the second most serious world health problem by 2020.¹

Among all the childhood mental disorders probably the best known and most frequent is the early onset major depressive disorder (MDD), which is a burden for both the individual and the society. Prior to 1970s, when the psychodynamic theories provided the primary conceptual model for psychiatric disorders, it was commonly believed that it was developmentally impossible for prepubertal children to experience depression, because of lack of an internalized superego prior to adolescence. Later, more and more clinical observation and numerous empirical investigations during the seventies refuted the misconceptions that depression does not occur in children and adolescents. Researchers provided evidence that typical symptoms of depression could be identified in children and classified in accordance with the adult diagnostic and statistical manual (DSM) Taxonomy.

It is now evident that childhood depression is a chronic and relapsing illness that doesn't remit spontaneously and therefore requires early identification and treatment. If not treated adequately, childhood depression can have devastating effects. It can leads to increased risk of poor academic performance, impaired social functioning, suicidal behaviour, homicidal ideation, and alcohol/substance abuse. Many epidemiological studies have shown that prevalence of depression is 1-2% in childhood and 3-8% in adolescence. Without treatment, problems originated in childhood will lead to distress and impairment throughout adulthood.²

Only few studies are available in Indian subcontinent about childhood depression therefore the present study is planned with the aims to study the prevalence of depression in school going children of 6-12 yr. age in Bikaner city and to identify the family pathology and home environment and stressful life events possibly related to depression in children.

METHODS

The present study was done by Department of Paediatrics, S.P. Medical College, Bikaner, Rajasthan, India in collaboration with Department of Psychiatry S.P. Medical College, Bikaner, Rajasthan, India during the period of January 2012 to December 2012. It is a school based cross-sectional study. Before conducting the study a written consent was taken from Principal of concerned schools and parents of each child explaining them that this is a non-invasive scientific study and the information collected during interview process will remain confidential.

Total 1200 Children from 3 government and 3 private schools in Bikaner city from age group 6-12 years whose parents gave consent and who were able to respond to questions on CES-DS³ and other scales were included in the study. Children suffering from mental retardation, epilepsy and other major medical and surgical disorder, whose parents did not give consent and who were not

responding to the question on CES-DS and other tools were excluded from this study.

All The children included in the study were given a screening tool (CES-DS) to pick up the probable cases of depression.² The cut off score of 15 was taken as suggestive of depressive symptoms in children and adolescents. The positive cases on this screening tool further subjected to detailed psychiatric interview under the supervision of qualified psychiatrists. Information thus collected was entered in a self-designed proforma and the final diagnosis of major depressive disorder (M.D.D.) was confirmed according to the DSM-IV- TR⁴ criteria. The equal no. of children who were not having depression (screening test negative) were taken from the same school, age, sex and were matched on education as control. Home environment of M.D.D. cases was compared with control group children with the help of Home Environment Inventory (HEI) by Dr. Karuna Shankar Misra.⁵ Stressful life events and their stressfulness were assessed in both M.D.D. cases and control groups on Life event scale⁵ for Indian children by Savita Malhotra 2002.

Statistical analysis

The data was analysed using Open Epi, Version 2.3.1, an open source epidemiological statistics software for public health. For comparison of dichotomous variables chisquare test was used. Difference was considered significant when p-value was <0.05.

RESULTS

Table 1: Sociodemographic variables of children screened (N=1200).

Socio-demographic variable	No. of children (out of 1200)	Percentage
Gender		
Male	686	57.2
Female	514	42.8
Age group		
6-8	302	25.1
9-10	225	18.7
11-12	673	56.1
Standard group		
I,II,III	324	27
IV,V	353	29.4
VI,VII,VIII	523	43.6

In present study total 1200 children of 6-12 yrs. age were included from 6 different schools in Bikaner city. Out of these 686 (57.2%) were male and 514 (42.8%) were female. 302 (25.1%) were of 6 to 8 year, 225 (18.7%) of 9-10 year and 673 (56.1%) of 11-12 year age. Out of 1200 children 324 (27%) were in 1 to 3rd standard, 353 (29.4%) in 4-5th standard and 523 (43.6%) in 6-8th standard (Table 1).

Table 2: Prevalence of MDD in school children.

Total no. of children	No. of screening positive children	No. of confirmed cases (M.D.D.)	Prevalence
1200	121(10.08%)	28(2.33%)	2.33%

121 children out of 1200 scored 15 or more marks on CES-DS and they were considered screening positive and given a diagnosis of "probable depression". These 121 children were further evaluated by detailed psychiatric evaluation, 28 children were found to be suffering from major depressive disorder (M.D.D.) according to DSM-IV TR criteria. Thus the prevalence of childhood depression in our study was found 2.33% (Table 2).

Table 3: Sociodemographic variables of MDD cases.

Gender	No. of children	No. of MDD cases	Prevalence	p value
Male	686	16	2.33%	1
Female	514	12	2.34%	not
Total	1200	28	2.33%	significant
Age group	No. of children	No. of MDD cases	Prevalence	p value
6-8	302	4	1.32%	0.22
9-10	225	4	1.77%	0.23 Not
11-12	673	20	2.97%	
Total	1200	28	2.33%	Significant
Standard	No. of children	No. of MDD cases	Prevalence	p value
I, II, III	324	3	0.92%	
IV, V	353	3	0.84%	0.00079
VI, VII, VIII	523	22	4.2%	Significant
Total	1200	28	2.33%	

In our study prevalence of depression was found almost similar in males (2.33%) and females (2.34%). Prevalence of depression was higher in children of higher age group (1.32% in 6-8 year v/s 2.97% in 11-12 year age group) but on statistical analysis this difference was not found significant. Prevalence of depression was higher in students of higher standard (0.92% in 1st-3rd standard, 0.84% in 4th-5th and 4.2% in 6th-8th standard) and this difference was statistically significant (p value-0.00079) (Table 3).

In this study level of home environment of M.D.D. cases was compared with control group children by "Home Environment Inventory" (by Misra KS).⁵ It was found that children with major depression had a very high level of social isolation, deprivation of privileges and rejection.

They also showed high (in males) and above average (in females) level of punishment in their home environment, while control group children had very high level of Protectiveness, nurturance and permissiveness in their home environment (Table 4 and 5).

Table 4: Mean scores of MDD cases and controls on home environment inventory.

D'		Mean score on HEI			
Dimension of home		Males		Females	
1	rironment	Controls (n=16)	Cases (n=16)	Controls (n=12)	Cases (n=12)
A	Control	26.7	26.4	23.6	24.0
В	Protectiveness	32.3	26.8	33.6	25.3
С	Punishment	21.0	29.3	17.3	26.9
D	Conformity	31.2	33.5	34.3	31.9
Е	Social isolation	8.1	25.9	9.6	23.6
F	Reward	32.4	30.0	33.7	27.4
G	Deprivation of privileges	5.9	24.5	4.8	23.3
Н	Nurturance	35.0	21.2	30.0	24.3
I	Rejection	5.57	19.6	4.5	21.9
J	Permissiveness	32.7	22.4	32.4	25.4

Table 5: Comparison of home environment of MDD cases and controls based on scores on home environment inventory.

Dia	nension of	Mean sco Males	re on HE	[Females	
hor env	me vironment	Controls (n=16)	Cases (n=16)	Controls (n=12)	Cases (n=12)
A	Control	High	High	High	High
В	Protectiveness	Very high	Above average	Very high	Above average
С	Punishment	Avg.	High	Low	Above average
D	Conformity	Above average	Above average	High	Above average
Е	Social isolation	Low	Very high	Above average	Very high
F	Reward	High	High	High	Above average
G	Deprivation of privileges	Low	Very high	Low	Very High
Н	Nurturance	Very high	Avg.	High	Above average
I	Rejection	Avg.	Very high	Low	Very high
J	Permissiveness	Very high	High	Very high	High

Table 6: Mean score on stressful life event scale.

Group	Mean score		
Group	Males (n=16)	Females (n=12)	
Controls	8.8	9.6	
M.D.D. cases	18.7	21.6	

In our study stressful life events of M.D.D. cases were compared with control group children with the help of "Life event scale for Indian children by Dr. Savita Malhotra". The results showed that mean score on stressful life event scale was higher (both in males and females) in depressed children compared to control group children. It means that depressed children experienced more stressful life events than control group children (Table 6).

DISCUSSION

Varying prevalence rates have been reported for depression in children in previous studies. Egger et al, Costello et al and Zalsman et al in their studies have also reported the frequency of MDD before adolescence is 1-2%. Chadda et al reported a clinic prevalence of depression of 3% in children. Thus the result of prevalence rate in our study is consistent with available literature.

Kessler et al, Angold and Rutter have also found that prevalence rate was equal among girls and boys prior to adolescence. Costello et al in their study found that boys 'exceed girls' in the rate of depression prior to adolescence. There are many studies which report that in adolescence prevalence rates of depression is much higher in girls comparison to boys and most studies shows that this difference occurs after early to midadolescence usually after the age of 14 yrs. (Angold and Rutter; Cohen et al; Twenge and Nolen-Hoeksema. Angold and Rutter; Cohen et al; Twenge and Nolen-Hoeksema. In our study 6-12 yrs. old children were included. Our finding of sex difference in prevalence rates is consistent with previous studies.

In our study it was also found that prevalence of major depression was higher in children of 11-12 yrs. age (2.97%) compared to lower age. On statistical analysis this difference was statistically insignificant. Prevalence of major depression was found higher in children of 6th-8th standard compared to children of lower standard and difference was statistically significant. In a study by Offord et al in children of 4-16 yrs age prevalence of major depression was 5.5%. ¹⁶ In study by Lewinson, Hope et al in children of 14-18 yrs age 7.8% prevalence was found by DSM-III-TR major depression. ¹⁷ Thus it is evident from previous studies that prevalence of depression is higher in adolescents and children of higher age group compared to lower age group children.

Magnussen, in his study reported that disturbances in family relations and interactions are associated with depression during childhood. Repressed to Stark et al depressed children perceive their families more negatively than non-depressed children. According to Sanders et al depressed children experience hostile, critical, and rejecting family environments. Jaffee et al found a significant association between depression and parental disagreement about discipline. They estimated that being abused or neglected in childhood may result in

the onset of depression in children. Weich et al have illustrated a significant association between higher risk of depression and children living in a broken family.²² It was also noted that maltreatment such as abuse and neglect were associated with depression in childhood.

Mehler-Wex and Kölch affirmed that the pre-morbid risk factors in 70% of depressed children and adolescents were found to be the critical life events. ²³

Mayer et al found that young patients with MDD experienced about twice as many lifetime negative events than a school based comparison group.²⁴

CONCLUSION

In our study a prevalence rate of M.D.D. was 2.33% in 6-12 yrs. old school going children in Bikaner City. Difference in prevalence rate according to age and sex was not found statistically significant but there was a statistically significant difference in prevalence rate according to standard group in which prevalence was significantly higher in 6th-8th standard. Depressed children showed very high level of social isolation, deprivation of privileges, rejection and punishment in their home environment and it was found that depressed children experienced more stressful life events compared to control group children.

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