A Cross-sectional Study of Common Psychiatric Morbidity in Children Aged 5 to 14 Years in an Urban Slum

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ABSTRACT

Aim: Study of the prevalence of common psychiatric disorders in children aged 5 to 14 years in a health post area of an urban slum. **Objectives:** (1) To study frequency of specific psychiatric disorders in the study population, (2) To study the relationship between sociodemographic variables and psychiatric morbidity. **Settings and Design:** The present study was conducted in one of the five health posts of an urban slum, which is a field practice area of the teaching medical institute. It was a cross-sectional study. **Materials and Methods:** Sample size was estimated by using 20% as a prevalence of psychiatric morbidity which was obtained from previous studies done in developing countries. Household was used as a sampling unit and systematic random sampling method was used for selecting household. Total 257 children aged 5 to 14 years were included in the study. A pre-designed, semi-structured diagnostic interview schedule based on DSM-IV criteria was used for data collection. **Statistical Analysis Used:** The tests of significance used were Chi-square and Logistic regression analysis. **Results:** The prevalence of psychiatric morbidity in this study was 14.8%. Non-organic enuresis, Attention deficit hyperactivity disorder, Conduct disorder, and Mental retardation were identified as the common mental health problems. **Conclusions:** Factors like nuclear family, parents not living together, large family size, and positive family history of psychiatric disorder were associated with psychiatric morbidity in children.

Keywords: Children, child psychiatry, psychiatric morbidity

Introduction

The burden of mental disorders is great as they are prevalent in all societies. They create a substantial personal burden for affected individuals and their families, and produce significant economic and social hardships that affect society as a whole. Studies of children and adolescents have also demonstrated a high prevalence of mental disorders in primary care settings. Despite the large number of people who attend primary care settings with mental disorders, their recognition and treatment is generally inadequate. Estimates of the prevalence of mental disorders, the burden they impose if left untreated, and the existence of effective primary care-based treatments are important issues for mental health integration into primary care.[1]

Without early and effective identification and interventions, childhood mental disorders can persist and lead to a downward spiral of school failure, poor employment opportunities, and poverty in adulthood. World Health Organization said that there is paucity of information on prevalence and the burden of major mental and behavioral disorders in all countries, particularly in developing countries.[2] Children under 16 years of age constitute more than 40% of India's population and information about their mental health needs is a national imperative. Community surveys have the advantage of being more representative; they include children and adolescents who do not attend school and those who do not access mental health services.[3] Hence, the present study was carried out in the community to estimate the magnitude of childhood psychopathology. In addition, it also aimed to study the sociodemographic correlates of the psychiatric disorders.

Materials and Methods

A cross-sectional study was conducted in urban health center post in an urban slum, which is a field practice area of Department of Community Medicine of the teaching medical institute in Mumbai. This health post caters to 1,10,000 people residing in 20,000 households.

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According to World Health Organization,[4] community-based studies have revealed an overall prevalence rate for mental disorders of about 20% in several national and cultural contexts. Early Indian community-based studies reported prevalence rates of psychiatric disorders among children ranging from 2.6 to 35.6%.[5-8] Accordingly, by assuming 20% as a prevalence of psychiatric morbidity, a sample size of 246 was calculated and systematic random sampling technique was used with household as a sampling unit.

A pre-designed interview schedule was used for data collection. It had two components as Introductory and Diagnostic Screening Interview.[9] Introductory Interview consisted of sociodemographic variables, developmental history, health status of the child, history of psychiatric disorder in the family or child, and school profile of the child. Diagnostic Screening Interview is a standardized tool for diagnosing psychiatric disorders. It is a semi-structured diagnostic interview designed to assess current and past episodes of psychopathology in children and adolescents based on DSM-IV criteria. A child was said to be suffering from psychiatric disorder if s/he satisfies any of the following conditions: (a) any child who satisfied DSM-IV criteria under any domain, (b) known case of psychiatric illness, and (c) history of Epilepsy.

Interviews were conducted after getting informed consent. In stage 1, a single interviewer collected data by conducting face-to-face interviews after getting training in common childhood and adolescence psychiatric illnesses in Department of Psychiatry of a teaching medical institute. In stage 2, children and adolescents who fulfilled the DSM-IV criteria under any domain for presence of psychiatric disorder but for whom specific diagnosis was not available were referred to the Child Guidance Clinic (CGC) at Department of Psychiatry where a psychiatrist examined them to arrive at the specific diagnosis. For those who fulfilled the DSM-IV criteria but did not report to CGC, the case history and response sheet were discussed with the same psychiatrist to arrive at the specific diagnosis. Limitations for study were: (a) Responses given by the respondents were relied upon; (b) It was not possible to study all the factors that may have relationship with psychiatric morbidity (e.g. Family cohesiveness, Peer relationship).

Data classification and analysis was done using SPSS software. The tests of significance used were Chi-square and Logistic regression analysis.

Results

Of the 148 households who gave the informed consent for the study, 35 (23.7%) had no children between 5 to 14 years. Thus, from 113 households, 306 respondents were approached. Of 306, 29 were not available at house even after three visits, five could not be interviewed due to language barrier or communication problem, and 15 left the interviews half the way. Thus, total 257 respondents were included. The response rate was calculated as 84%.

Prevalence of psychiatric morbidity in the present study population was 14.8% (38 cases). Of these, 5.5% were associated with comorbid disorders, primarily non-organic enuresis (7; 2.7%), attention deficit hyperactivity disorder (ADHD, 5; 2.0%), and mental retardation (MR, 2; 0.8%).

Non-organic enuresis (6.2%), ADHD (4.3%), Conduct disorder (CD; 2.7%), and MR 2.3%) were identified as the common psychiatric disorders [Table 1]. The relationship with sociodemographic variables [Table 2] showed that prevalence of psychiatric morbidity was highest in children aged 8 to 11 years, in males than in females (χ^2 = 3.90; df = 1; $P < 0.05$), in children of illiterate mothers (χ^2 = 8.92; df = 2; $P < 0.05$), in children residing in nuclear family (χ^2 = 6.50; df = 1; $P < 0.05$), in children having more number of siblings in the family as well as large family size, in children of the family where parents were not living together (χ^2 = 17.14; df = 1; $P < 0.05$), and in children having family history of psychiatric disorders (χ^2 = 6.98; df = 1; $P = <0.05$). Multivariate logistic regression analysis identified nuclear family, parents not living together, large family size, and positive family history of psychiatric disorder had higher odds for presence of psychiatric morbidity [Table 3].

Table 1: Psychiatric disorders classified into specific diagnostic groups

Specific diagnostic group/s	Presence of specific psychiatric disorder/s*		
	Male No. (%)@	Female No. (%)#	Total No. (%)$
Non-organic enuresis			
Nocturnal	10 (7.2)	4 (3.4)	14 (5.4)
Nocturnal-Diurnal	0 (0.0)	2 (1.7)	2 (0.8)
Attention deficit hyperactivity disorder			
Inattentive	2 (1.4)	0 (0.0)	2 (0.8)
Hyperactive	4 (2.8)	0 (0.0)	4 (1.6)
Combined	2 (1.4)	3 (2.6)	5 (1.9)
Conduct disorder			
Childhood onset	0 (0.0)	1 (0.9)	1 (0.4)
Adolescence onset	4 (2.8)	2 (1.7)	6 (2.3)
Mental retardation			
Mild	3 (2.1)	1 (0.9)	4 (1.6)
Moderate	0 (0.0)	1 (0.9)	1 (0.4)
Severe	1 (0.9)	0 (0.0)	1 (0.4)
Profound	0 (0.0)	0 (0.0)	0 (0.0)
Stuttering/stammering	3 (2.1)	2 (1.7)	5 (1.9)
Oppositional defiant disorder	2 (1.4)	1 (0.9)	3 (1.2)
Learning disorder			
Reading	0 (0.0)	0 (0.0)	0 (0.0)
Writing	0 (0.0)	1 (0.9)	1 (0.4)
Mathematics	0 (0.0)	0 (0.0)	0 (0.0)
Epilepsy	0 (0.0)	1 (0.9)	1 (0.4)
Major depression	0 (0.0)	1 (0.9)	1 (0.4)
Separation anxiety disorder	0 (0.0)	1 (0.9)	1 (0.4)
Non-organic encopresis	0 (0.0)	0 (0.0)	0 (0.0)
Tic disorder	0 (0.0)	0 (0.0)	0 (0.0)

% mentioned in parentheses have been calculated considering as @: *n*=138, #: *n*=119 and $: *n*=257, *There was comorbidity existing among various disorders

Table 2: Relationship of variables with psychiatric morbidity

Variable/s	No. of respondents (*n*=257)	Psychiatric morbidity (%)	χ^2	df	*P*
Age group (Years)					
5-8 years	78	11 (14.1)	0.54	2	>0.05
8-11 years	95	16 (16.8)			
11-14 years	84	11 (13.1)			
Gender					
Female	119	12 (10.1)	3.90	1	<0.05
Male	138	26 (18.8)			
Education of mother					
Illiterate and primary	132	28 (21.2)	8.92	2	<0.05
Secondary	97	8 (8.2)			
Higher education	28	2 (7.1)			
Education of father					
Illiterate and primary	47	8 (17.0)	0.70	2	>0.05
Secondary	128	20 (15.6)			
Higher education	82	10 (12.2)			
Type of family					
Nuclear	170	32 (18.8)	6.50	1	<0.05
Joint	87	6 (6.9)			
Family size					
Less than 5 members	96	8 (8.3)	8.58	2	<0.05
Between 5-10 members	139	23 (16.5)			
More than 10 members	22	7 (31.8)			
Religion					
Hindu	141	18 (12.8)	1.76	2	>0.05
Muslim	78	15 (19.2)			
Others	38	5 (13.2)			
Parental status					
Living together	227	26 (11.5)	17.14	1	<0.05
Not living together	30	12 (40.0)			
Number of siblings					
1 to 3	195	24 (12.3)	3.94	1	<0.05
≥4	62	14 (22.6)			
Past history of chronic disease					
Yes	27	7 (25.9)	2.97	1	>0.05
No	230	31 (13.5)			
Family history of psychiatric disorder					
Yes	16	6 (37.5)	6.98	1	<0.05
No	241	32 (13.3)			

Figures in parentheses indicate percentages calculated row wise

Table 3: Psychiatric morbidity: Logistic regression (multivariate)

Variable	Odds ratio (95% Confidence Interval)	*P* value
Family history of psychiatric disorder		
Present	3.317 (0.859 12.801)	0.082
Absent	®	
Family type		
Nuclear	8.743 (2.443 31.291)	0.001
Joint	®	
Family size		
More than 10	26.695 (4.888 145.784)	0.000
5-10	3.040 (1.086 8.511)	0.034
Less than 5	®	
Number of siblings		
≥4	1.054 (0.416-2.669)	0.912
1 to 3	®	
Maternal education		
Illiterate and primary	1.782 (0.332 9.570)	0.501
Secondary	0.594 (0.103 3.438)	0.560
Higher education	®	
Gender		
Male	1.653 (0.717 3.807)	0.238
Female	®	
Parental status		
Not living together	4.737 (1.763-12.729)	0.002
Living together	®	

® indicates reference category

used, changes in the assessment questions used in community surveys, minor changes in diagnostic criteria, number of informants, and sampling methodology.[10] Third, it is stated that the behavioral and emotional problems in children may differ from one cultural context[11] to another and this finding reinforces the concept. Other reasons could include lack of incentives or privacy, time taken for the interview, children and adolescents' perceptions of the mental health profession, higher threshold of tolerance for certain symptoms, and other sociocultural factors.

Srinath, *et al.*[3] reported prevalence of 6.2% for Non-organic enuresis which was the commonest disorder found in children aged 4 to 16 years. Bansal and Barman[12] reported prevalence of 4.5% for Non-organic enuresis. In our study, Non-organic enuresis was also the most common psychiatric disorder found in 6.2% children. The findings indicate a significant presence of the problem. There is thus a great need to emphasize the importance of recognizing this condition to the caretakers of children. The prevalence rate of ADHD in studies conducted in the developed countries is reported to be 4% (range, 1.7%-17.8%).[13] Costello, *et al.*[14] reported that there is increase in median prevalence of ADHD from 3% to 4%. Malhotra, *et al.*[15] found that there was an increase in the number of registrations of Hyperkinetic disorders (5%). Srinath, *et al.*[3] and Bansal and Barman[12] reported a point prevalence estimate for hyperkinetic disorder to be 1.6% and 6%, respectively, while we found that 4.3% children were having ADHD. The higher prevalence of ADHD in our study may reflect their recognition as a medical disorder impacting academic

Discussion

Prevalence of psychiatric morbidity in present study (14.8%) was lower as compared to prevalence (about 20%) in previous community-based studies by WHO.[4] This difference in psychiatric morbidity rate could be due to various reasons. First, the present study was conducted in Indian setting and community-based studies in India such as Srinath, *et al.*,[3] Rahi, *et al.*[7], and Anita, *et al.*[8] reported prevalence of psychiatric morbidity in children as 12.0% (4-16 years), 16.5% (4-14 years), and 16.5% (6-14 years). Second, Diagnostic Screening Interview[9] and DSM-IV criteria were used to identify cases in present study while other studies had used different instruments and criteria. Prevalence rates can vary markedly with screening instruments

achievements, in the parents, teachers, and among physicians. Ford *et al.*[16] found increased prevalence of ADHD in boys. We also found that male children (3.1%) were more affected with ADHD than female children (1.2%). Male children have a higher frequency of externalizing disorders, which are more easily recognized due to their disruptiveness that may be the reason behind male preponderance. Previous studies[16,17] in developed nations reported that CD and Oppositional Defiant Disorder (ODD) was prevalent in 1.5-3.3% (more in boys) and 2.3-5.5% (gender difference less clear), respectively. In our study, CD and ODD was found in 2.7% and 1.2% children, respectively, with no gender difference. Prevalence of MR reported in previous Indian studies was 0.9%,[3] 3.25%,[8] and 1.5%,[12] while it was 2.3% in our study area. Prevalence of Stuttering (1.9%) and Epilepsy (0.4%) was found to be comparable to ICMR[3] research (1.5% and 0.7%, respectively) in 4 to 16 years children. The prevalence rates of 0.1% by Srinath *et al.*,[3] 0.37% by Anita *et al.*[8] for depressive disorders, and 0.6-3.0%[13] from newer studies were revealed for Major Depression (MD). In our study, prevalence of MD was 0.4%. The reasons for low prevalence of MD need to be explored in the context of the increasing evidence of suicidal behavior in young Indian population. The present study might have underestimated psychiatric morbidity among adolescents, and particularly among adolescent girls whose vulnerability to emotional or internalizing disorders is well documented.[18]

In line with previous studies,[3,7,15] a higher prevalence rate was seen in 8 to 11 years age group but it was not significant. Factors like increasing burden of studies in schools, emotional disturbances related to early adolescence, or mothers' perception of any resultant undesired change in behavior as abnormal may be contributing to high prevalence in 8 to 11 years children. Psychiatric morbidity was predominantly found in male as compared to female children. This is in agreement with earlier studies.[7,19] Male predominance may be due to psychological or biological factors since greater attention is often paid to the male children and the parents notice any abnormal behavior earlier resulting in early identification.

Education of mother was found to have a negative relationship with psychiatric morbidity. Other researchers[7,20] have observed significantly higher prevalence of the psychopathological disorders in children of illiterate mothers. This may be explained by the fact that education and awareness increases mothers' perception of any developmental or behavioral deviance of the child at an earlier stage when it is still amenable to prevention and/or treatment. Belonging to a nuclear family was found to be conducive to generation of mental disorders in children, probably due to relative lack of attention paid to them in the absence of grandparents, uncles, aunts, etc., Thus, they might have been emotionally deprived. Similar findings are reported by Anita *et al.*[8] and Bansal and Barman[12] in children living in nuclear families. Presence of family history of psychiatric disorder was significantly (χ^2 = 6.98; df = 1; P=<0.05) associated with psychiatric morbidity in children, which was in line with previous studies.[3,7,13] There was significantly higher rate of psychiatric

morbidity among the children who had parents not living together (separated parents, deaths of parents as psychosocial stress factors). Similar findings were reported by Rahi *et al.*[7] and Merikangas *et al.*[20] Separation of child from parents causes not only physical loss but also emotional deprivation. This separation experience may cause persistent defects in the ability to form relationships and intellectual functioning may get impaired.

Further analysis can enhance the understanding of the patterns of comorbidity and its sociodemographic correlates. An incidence study may be the next step required in understanding epidemiology of psychiatric disorders in children.

Acknowledgements

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