

Editorial**The Need for National Data on Epidemiology of Child and Adolescent Mental Disorders****Pratap Sharan, MD, PhD, Rajesh Sagar, MD****Address for Correspondence:** Professor Pratap Sharan, Department of Psychiatry, All India Institute of Medical Sciences, New Delhi – 110029, Email: pratapsharan@gmail.com

It is essential that the nation find ways to support emotional health of children and adolescents and their families through a continuum of comprehensive, individualized, and culturally compatible services. Children below 16 years of age constitute over 40% of India's population and estimating the prevalence of mental disorders in children and adolescents is critical to providing the mental health services they need.

The application of methodological developments like structured and semistructured diagnostic interviews and statistical methods for estimating prevalence and correlates of mental disorders, have established the prevalence of mental disorders, patterns of comorbidity, correlates and risk factors for mental disorders, and service patterns in developed countries.¹ In contrast, Indian studies haven't as yet definitively established the prevalence of mental disorders in children and adolescents. The wide disparity in the reported prevalence rates of mental disorders in Indian studies on children and adolescents have been attributed to methodological differences like varying modes of case ascertainment, sampling methods, instruments and the informants chosen across the studies, and unspecified clinical criteria for case ascertainment.²

A comparison to epidemiological studies carried out in developed countries and India
Overall estimates of prevalence of mental disorders

Psychiatric epidemiological studies from high-income countries indicate that more than a quarter of children and adolescents meet lifetime criteria for a mental disorder;^{1,3} and about 10% have distress or impairment that is severe enough to warrant intervention.⁴

Community studies on emotional/behavioural disorders in children and adolescents conducted in India have yielded disparate point prevalence estimates (2.6% to 35.6%).^{2,5-7} Methodologically robust studies on community samples have reported overall point prevalence rates of 9.4% in children aged 8-12 years,⁸ 12.5% in children aged 0-16 years;² and 1.81% in adolescents aged 12-16 years.⁹ However, the prevalence of 12.5% in the Bangalore study was based on inclusion of breath holding spells (5.9% [i.e. almost half of all diagnosed conditions] in children aged 0-3 years) and epilepsy (1% in children aged 0-3 years and 0.7% in those aged 4-16 years [nearly 10% of all diagnoses]) and exclusion of possible learning disorders (9.4% [or almost three fourths of assigned positive diagnoses]). The Goa study used an instrument in a non standardized language version (Konkani) and could interview parents for only three-fifths of adolescents and did not interview teachers.⁹ The lack of an interview with a substantial minority clearly affected the prevalence figure as they found that the prevalence of a disorder was almost twice as high in the group with parent and adolescent data compared with the group with adolescent data only. About 5% of children met the impairment criterion in the two studies that specifically assessed impairment.^{2,8} Assessment of felt treatment needs indicated that only 37.5% of the families perceived that their children had any problem.² The above studies suggest that the prevalence of childhood and adolescent mental disorders in India may be lower than that estimated in developed countries; however, the verdict is still out.

Rates of common specific mental disorders

Mood disorders: the median prevalence estimate of major depression in children and adolescents in studies conducted in developed countries is 4.0% (range: 0.2%-17%).³ In contrast Srinath et al reported a point prevalence of 0.1% for depressive disorders in the 4-16 year olds in the Bangalore study and Pillai et al, a point prevalence of 0.4% in 12-16 year olds in the Goa study.^{2,9} Nair et al reported a 3% prevalence of depression among school-attending adolescents (13–19 years) in a study that specifically assessed the prevalence of depression.¹⁰ It should be pointed out here that the prevalence of depression in children and adolescents in India needs to be understood in the context of the high and ever increasing evidence of suicidal behaviour in young Indian population.¹¹ Prospective studies from developed countries suggest high lifetime rates of major depression in early adulthood (23.2%-43.3%);¹² and a large increase in the prevalence and change in gender distribution (from almost equal to female predominance) of depressive episodes during the transition from childhood to adolescence.¹ Prospective studies tracking the natural course of specific childhood and adolescent mental disorders have not been conducted in Indian community samples.

The lifetime prevalence rates for bipolar disorder among children and adolescents in community samples in developed countries range from 0% to 2.1%; with the rates being nearly equal in males and females.¹ Srinath et al did not report any case of bipolar disorder in their community sample from Bangalore.² In a prospective study, Lewinsohn et al reported that the incidence of bipolar disorder peaks at age 14 in both males and females and decreases gradually thereafter.¹³

Both major depression and bipolar disorder are associated with comorbid disorders like anxiety disorders, attention-deficit/hyperactivity disorder (ADHD), oppositional defiant disorder (ODD), and conduct disorder.¹³ Anxiety disorders may well be an early manifestation of mood disorders.¹ Studies on concurrent and lifetime comorbidity among childhood and adolescent mental disorders have not been conducted in India.

Anxiety disorders: The median prevalence rate of all anxiety disorders in children and adolescents was reported to be 8% (range: 2%-24%) based on studies conducted in developed countries.¹⁴ Generalized anxiety disorder and social anxiety disorder were reported to be the most prevalent disorders. Srinath et al reported a rate of 4.1% for anxiety disorders in the 4-16 year olds, with specific phobia (2.9%) being the most commonly diagnosed disorder despite its reported underestimation (the employed screen lacked adequate sensitivity for this disorder).² Pillai et al reported that anxiety disorders were present in 0.8% of their sample of 12-16 year olds. Of the 20 individuals diagnosed with anxiety disorders, 4 had social phobia, 4 had panic disorder with agoraphobia, 4 had obsessive–compulsive disorder (of whom 1 also had a post-traumatic stress disorder), 2 had generalized anxiety disorder and 6 had an ‘anxiety disorder not otherwise specified’.⁹ Girls tend to have more of all subtypes of anxiety disorders in studies conducted in the developed countries.¹ Though school based samples from India report a higher prevalence of internalizing disorders in girls,¹⁵ the gender difference in prevalence of anxiety disorders in children and adolescents hasn’t been established in community samples.

Data from developed countries suggest that specific subtypes of anxiety may have different peak periods of onset: separation anxiety and specific phobias in middle childhood; overanxious disorder in late childhood; social phobia in middle adolescence; panic disorder in late adolescence; generalized anxiety disorder in young adulthood; and obsessive compulsive disorder in early adulthood.¹⁶ Anxiety disorders are associated with all mood disorders, disruptive behaviour disorders, eating disorders, and substance use disorders. As mentioned earlier, anxiety disorders may be the developmental precursors of mood disorders especially depression in adulthood.¹

Externalizing disorders: The median prevalence rate of attention deficit hyperactivity disorder in studies conducted in the developed countries is reported to be 4% (range: 1.7%-17.8%).¹⁴ Srinath et al reported a point prevalence estimate for hyperkinetic disorder to be 1.6%.² Pillai et al reported a rate of only 0.1% in 12-16 year old adolescents.⁹ However, another two-stage study that specifically assessed attention deficit/hyperactivity disorder reported a prevalence of 12.2% in pre-schoolers selected from kindergartens.¹⁷ Surveys from developed countries consistently show a male preponderance of attention deficit hyperactivity disorder; and its prevalence among boys seems to be increasing.¹

The median 12-month prevalence rate of disruptive behaviour disorders (i.e., conduct disorder or oppositional defiant disorder) is 6% (range: 5%-14%) in studies conducted in developed countries.³ Srinath et al reported a point prevalence for conduct and oppositional defiant disorder to be 1.3%;² and Pillai et al, a rate of 0.4% for disruptive behavior disorders.⁹ Studies from developed countries suggest that conduct disorder is also more prevalent in boys than girls, however, the gender difference in prevalence of oppositional defiant disorder is less clear.¹ A school based study from India showed that the prevalence of externalizing disorders is higher among boys, however a definitive statement regarding gender distribution of externalizing disorders awaits replication in community samples.¹⁵

Age of onset of disruptive behavior disorders appears to be an important predictor of outcome, with earlier onset associated with more aggressive behaviors,¹⁸ and boys who have a diagnosis of attention deficit hyperactivity disorder being more likely to have an early onset of conduct disorder.¹⁹ Community studies of youth have shown a high degree of co-occurrence of conduct disorder and attention deficit hyperactivity disorder.¹⁸ Likewise, there is also a strong association between the disruptive behavior disorders with mood and anxiety disorders.¹

Substance abuse and dependence: The median estimate of alcohol or drug abuse or dependence in community surveys of adolescents in developed countries is 5% (range: 1-24%).³ Whereas some studies show equal prevalence rates in males and females, others show that males have greater rates than females.¹ The complete absence of substance abuse in the Bangalore sample was linked to the low response rate for the diagnostic interview, youths' unwillingness to reveal such information and parents' ignorance about the abuse.²

Disorders in very young children: With the exception of pervasive developmental disorders, there has been considerable controversy about the validity of diagnosis of mental disorders in very young children (age <5 years). Egger and colleagues summarized the rates of childhood mental disorders as follows: attention deficit hyperactivity disorder (2%-5.7%), oppositional defiant disorder (4%-16.8%), conduct disorder (0%-4.6%), depression (0%-2.1%), and anxiety disorders (0.3%-9.4%).²⁰ There was a high degree of comorbidity in young children with mental disorders; of those with one disorder, approximately 25% have a second disorder. The proportion of children with comorbidity increases about 1.6 times for each additional year from age 2 (18.2%) to 5 (49.7%).²⁰ In contrast, Srinath et al reported that the most common diagnoses in the 0-3 year age group were pica (2%), behaviour disorder NOS (1.8%), expressive speech disorder (1.4%), mental retardation (1.4%).²

Risk factors for mental disorders in children and adolescents

Prospective follow-up of children and adolescents have shown that child and adolescent mental disorders are related to a wide array of adverse outcomes. Risk factors for the development of mental disorders in children have been divided into child characteristics and those of his/her parents/family. *Child characteristics* include sex, age, ethnicity, birth weight, physical health, temperament, intelligence, cognitive and psychological function, pre- and perinatal exposures to illness, physical stress, alcohol, drugs, nutrition, infections and other environmental agents, and lifetime history of environmental exposures to toxins, stress, infections, social environment and stressful life events; *family and parent characteristics* including parental education, age, social class, employment, marital status and harmony,

psychiatric and medical history, parental delinquency, parental substance use, parent-child relationship, parental handling, and family function, structure, and *neighborhood and broader contextual influences* like disadvantage and poverty, violence overcrowding possible exposure to toxins, etc., on the health of children and their families.^{1,4} One of the most consistent and potent risk factors for the development of mental disorders in children is a parental history of mental disorders. There is also some evidence for specificity of familial aggregation of the broad classes of mental disorders.¹ It is apparent that the social context of the child, particularly a lack of stability of the home environment, has substantial influence on both the onset and persistence of mental disorders.

There are a very few replicated findings related to risk factors of childhood and adolescent mental disorders in Indian studies. The following risk factor have been reported to be significantly associated with child and adolescent psychiatric morbidity in one or more studies: male gender, muslim religion, being first born, school failure and impaired reading and vocabulary, sexual discrimination, and physical abuse and adoption of a non-traditional lifestyle; low parental especially maternal education, lower socioeconomic status, large families, and parental mental disorder especially alcohol abuse in father.^{2,6,8,9} Strong family support was noted to be a protective factor.⁹ Relationship with malnutrition, perinatal problems, and learning problems was not consistent.^{2,6,8,15,21} A similarity between risk factors identified in Indian studies and those conducted in developed countries was noted.¹⁵

Where do we go from here?

Need for national data

Although available Indian studies begin to address the urgent need for systematic information tracking of the prevalence and distribution of mental disorders, national data are still unavailable. The absence of empirical data on the magnitude, course, and treatment patterns of mental disorders in a nationally representative sample of children and adolescents has impeded efforts essential for establishing mental health policy for this population.

Research initiatives should address the lack of national statistics on mental health in children. In particular there is need for prospective studies on natural course of disorders, concurrent and lifetime comorbidity, and the interaction of multiple risk factors over time in producing multiple outcomes. The prospective design of many of the community surveys of children and adolescents that began in the 1970s and 1980s has generated substantial information on the continuity of childhood disorders into early adulthood.¹ Rudimentary steps in this direction may have begun in India. In a study that followed up children after 6 years, Malhotra et al reported that the incidence of psychiatric disorders in a representative sample of school children from Chandigarh was 18 per 1000 per year.²² Some of the challenges inherent in conducting prospective studies were evident in this study, e.g. substantial loss to follow up, decisions regarding whether to stick with earlier instruments/methodology for comparability of results or to retrofit results while employing advanced instruments/methodology; and possible changes in conceptualization of psychiatric disorders over time.

Instruments such as Strength and Difficulties Questionnaire, Diagnostic Interview Schedule for Children or the WHO Composite International Diagnostic Interview (for adolescents; limited validity among children younger than age 13) can form the basis of an ongoing method to collect data for a much-needed database. The expense could be minimized by using a low-cost data collection method such as a questionnaire administered in primary care setting, anganwadis and pediatricians' offices. It is important that future screening measures use multiple sources of information and make assessment in multiple settings.

There would be many challenges in conducting the research on epidemiology on children and adolescents in India such as age group, instrument to be used, standardization and validation of instrument, translation of instrument, research design (single stage or multiple stages), research methodology (sampling methods etc), types of disorders to be

included, setting (school or household), number of informants (parents, teachers), validation etc. Moreover, it would be important to plan a longitudinal study to yield rich data on course & outcome, risk factors and utilization of services

Transcultural issues

It is evident that the overall rate of psychiatric disorders may be lower in India compared to developed countries, and also that the range of disorders may be different in the two settings. In particular Indian children and adolescents seem to have markedly lower rates of depression, substance use disorders and disruptive behaviour disorders and a greater rate of subsyndromal disorders (e.g. behaviour disorder NOS) and monosymptomatic conditions like enuresis and stuttering.^{2,23} It is difficult to disentangle whether the difference in rates and pattern of disorders are due to real differences or due to methodological issues.

Perhaps the most problematic methodological issues have been validity of screening instruments and the inclusion of specific learning disorders.^{2,21} The problem of screening was highlighted by Srinath et al whose screen negative sample had a prevalence rate of mental disorders of 8.6%, while their overall estimate for mental disorders in the entire sample based on second-stage assessment of screen positive cases was 12.5%.² The absence of conversion or dissociative disorders in their study was also puzzling, particularly since these are among the more common disorders seen at child psychiatric clinics in India.² There is no consensus on the inclusion of learning disorders in prevalence estimates of mental disorders in children and adolescents, despite their substantial presence.^{13,21} Srinath et al excluded leaning problems from the total prevalence estimate of psychiatric morbidity as they could not assign the diagnosis of specific learning disorders to the many children who screened positive for such problems but lacked adequate schooling. The inclusion of these children would have nearly doubled their overall prevalence estimates.²

Clearly, culture-specific assessment instruments must be developed to aid identification of certain psychiatric disorders. A more rigorous and more systematic approach to addressing the challenges of crosscultural research is needed through strategies such as using detailed interview-based measures in addition to questionnaires; examining the internal consistency of questionnaire subscales; comparing inter-informant agreement; and including a qualitative component to research projects.⁹

Beyond these issues of measurement, future research should also pay some attention to issues of explanation. The origin of these observed trans cultural similarities and differences is unclear, but potentially of great interest. In particular, understanding the apparent advantage in some groups, and the absence of a disadvantage in other groups despite socio-economic adversity, could yield important insights into protective factors against child mental health problems.

Data on services and impact

Despite the magnitude and serious consequences of mental disorders in children and adolescents, only about half of those with mental disorders in the United States of America receive mental health services.¹ Factors associated with service utilization include impairment, comorbidity, suicide attempts, parental recognition, and family burden. The actual diagnostic process and services provided differ dramatically according to the context of entry to service.¹ Studies on utilization of services are clearly needed in India.

One of the major advances in epidemiology during the past decade has been the increasing focus on the impact and burden of mental disorders. In contrast to adult mental disorders, the economic impact of childhood mental disorders has not been widely studied, and the burden of childhood and adolescent mental disorders are not acknowledged in the global burden of disease estimates. Costs associated with childhood mental disorders include medical expenses, special education needs, burden to the criminal justice system, and social services. Such studies are needed for advocacy as well as for prioritization of resource deployment.

In sum, epidemiological data of the kind outlined above from Indian studies would be critical in outlining needs for mental health services, training requirements for mental health professionals, planning for optimum resource deployment, and formulating government policy initiatives as well as for cross-cultural comparisons.

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