JPPS 2009; 6(1): 5-13 REVIEW ARTICLE

A REVIEW OF GLOBAL ISSUES AND PREVALENCE OF CHILD MENTAL HEALTH PROBLEMS: WHERE DOES

CAMH STAND IN PAKISTAN?

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# ABSTRACT

This study was done to update information and provide a more systematic review of past research, as well as identify current research trends and issues in child psychiatric epidemiological studies con- ducted globally and critique on the status of child mental health in Pakistan. In the last few years a number of studies in developing countries have adopted similar methods to those used in developed countries, with large and representative samples and widely established and standardized measures, thus enabling cross cultural comparisons, indicating that these researches are feasible and potentially worthwhile, and highlighting the need to carry out similar studies in other regions. There is a need for such a large scale study to be carried out in Pakistan to identify and enable policy maker to meet the needs of all children in the country.

**Key words:** Child Psychiatric Epidemiology, Prevalence, Pakistan.

# INTRODUCTION

Children are the most important asset and wealth of a nation. Healthy children make a healthy nation. Ac- cording to the figures provided by the world population prospectus 1, children under 15 years of age constituted about 28.3% of the world’s population in 2005, which is expected to fall slightly at 26.9% by the year 2010. The mission of the United Nations Children’s Fund (or UNICEF) is to advocate for the protection of children’s rights, to help meet their basic needs, and to expand opportunities to reach their full potential. These rights and standards that all governments should fulfil in imple- menting are fully articulated in the United Nations (UN) Convention on the Rights of the Child 2. This is univer- sally applicable to children living in all cultures and so- cieties, and has particular relevance to those living in conditions of adversity.

In recent years progress has been achieved in the eradication of infectious diseases, improvement of nu- tritional status and health education in many regions. This change has enabled societies to consider the men- tal health of children as a priority issue. Most nations and leading organizations acknowledge that child’s physical health can be affected by traumas, genetic dis- turbances, toxins and illness. However, only recently it

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has been understood that these same stressors can af- fect mental health, and have long-lasting repercussions. When risk factors and vulnerabilities outweigh or over- come factors that are protective or that increase resil- ience, mental health problems can occur.

Child and adolescent mental health problems manifest themselves in many domains and in different ways. It is now well established that mental health prob- lems at a young age can lead to continuing impairment in adult life. In 2003, WHO published its report entitled “Caring for children and adolescents with mental disor- ders”. The WHO report helped direct international focus on child and adolescent mental health issues as an es- sential component of overall health and growth. This report pointed out that the *“Lack of attention to the men- tal health of children and adolescents may lead to mental disorders with lifelong consequences, undermines com- pliance with health regimens, and reduces the capacity of societies to be safe and productive*” 3. World-wide 10- 15%, even up to 20% of children and adolescents, suffer from mental health problems 4. Suicide is the third lead- ing cause of death among adolescents 4. Depression often has an onset in adolescence, across diverse coun- tries, and is associated with substantial psychosocial impairment and risk of suicide 5.

## *Prevalence of overall child and adolescent* disorders in the general population

Over the years a number of studies have been conducted on prevalence of child psychiatric disorders in both developed and developing countries. There is a wide variation in these studies on methodological is- sues such as sample size, sampling framework, age,

instruments used and diagnostic criteria to define ‘caseness’. Studies also differ in their reporting style; some provide separate prevalence rates based on par- ent, teacher and child reports, while more recent and sound studies6 are based on combined corroborated information. Other studies provide prevalence rates with and without impairment. These differences make com- parison between studies difficult. Understanding the prevalence of psychiatric disorders among children and adolescents is an essential component of a sound pub- lic policy for the provision of mental health and other services. A review of published studies can help shape the direction of current and future research and provide the baseline context for interpreting new information as additional data become available. Roberts and collegues7 conducted one of the most comprehensive review of epidemiological studies of child and adoles- cent disorders. This study found tremendous variations in prevalence rates rating form 1-50% with a mean preva- lence rate of 15.8% (range 1% to 51%). The authors of this review observed that the rates varied, depending on age, gender and other factors, with approximate rates of 8% for pre-schoolers and 12% in studies including wider age ranges.

Since the mid 2000’s a number of studies have been carried out in developing countries that have used instruments and methodology similar to those of west- ern countries. Overall, most studies from developing countries have reported high prevalence rates than those in Western countries. These include two re- searches from Brazil, the Taubate study 8, Brazilian IIhade Mare study 9, India 10, Bangladesh 11, Puerto Rico 12, Ethio- pia 13 and recent Indian study 14 and Yemeni study 15. Although a review of literature identified a number of studies that have been considered, this present review has been limited to studies carried out on community sample and those that attempted to estimate the preva- lence of overall psychiatric disorders in children and adolescents.

# RESULTS OF STUDIES REVIEWED

Thirty separate studies were identified; half of these were conducted in developed and the other half in developing countries. The studies were designed to estimate the overall prevalence of psychiatric disorders among children and adolescents. The studies are sum- marized in table 1 and 2. They were conducted over a period of nearly 40 years, beginning in the 1970s. The samples came from a number of countries; the United Kingdom and the United States were the most frequent in the Western world, however, studies were carried out in sites in Europe, Asia, Africa, Middle East and South America. Sample sizes ranged from 448 to 10,438 (mean=3,410) in developed countries compared to a range from as low as 272 to 3,278 (mean= 1,257) for developing countries. Only ten of the 30 studies used one-stage designs, in which all study subjects received some type of psychiatric assessment; sample sizes

ranged from 528 to a large scale UK based sample of 10,438 (mean=3241). Twenty studies had two-stage de- signs, with sample sizes ranging from 272 to 9430 (mean=1912) in the first stage and 100 to 1,015 (mean=380) in the second stage. Mean prevalence were

13.22 % in developed countries and 10.42% in studies conducted in the developing countries. Overall, the mean prevalence was 12.5% without impairment and 11.1% when impairment criteria were taken into account. Prevalence rates varied from approximately 1% to al- most 32.5% without impairment and decreased to as low as 5% in studies that consider impairment criteria. The most common sampling frame in developed coun- tries was birth register and schools. Samples sizes were considerably large, several included more than 2000 subjects, and the largest consisted of 10,500 children in the UK. Previous studies in developing countries mainly used household samples, however; more recent stud- ies have used school samples. It has been noted that although household sample is the most representative, therefore the preferred option but it is very costly as it involves a significant amount of human as well as finan- cial resources. School based samples are gaining popu- larity in developing countries, though their limitation of including only school going children; therefore, poten- tially excluding at risk groups of children is widely ac- knowledged. However, studies in developing countries that used schools were able to collect data from larger sample due to the ease of assessing children, compared to the much smaller household samples due to the limi- tations discussed earlier.

The Rutter scales were commonly used as screen- ing measures in both groups of studies. During the last decade the Child Behavior Check List (CBCL) 16 and Strengths and Difficulties Questionnaire (SDQ) 17 have replaced the Rutter scales 18 in most countries (CBCL in North American studies and SDQ in Europe). However some developing countries still use the Rutter scales. The Diagnostic Interview Schedule for Children (DISC) 19 and Child and Adolescence Psychiatric Assessment (CAPA) 20 were previously the most popular diagnostic tools, recent studies mainly use the Schedule for Affec- tive Disorders and Schizophrenia (K-SADS) 21 or the Development and Well-Being Assessment (DAWBA) 22. Most studies in both developed and developing coun- tries adopt DSM-III-R 23 DSM-IV24 or ICD-1025 criteria, gen- erally with some associated impairment criteria. In pre- vious studies, the CGAS 26 was popularly used to mea- sure impairment. The new measures such as the SDQ and the DAWBA have incorporated impairment criteria in their structure.

Interestingly, higher participation rates were noted in developing countries despite or perhaps because of the fact that the population in these countries is not used to taking part in surveys, and thus questionnaires are not posted. Also in most developing countries there are no research ethics committees; hence researchers nor- mally collect data directly from participants. Compara-

Table 1

Epidemiological studies in developed countries (methodological characteristics and key findings)

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Study** | **Setting** | **Sampling frame** | **Design** | **Phase** | **Sample size** | **Age Range** | **Res- ponse rate** | **Preva- lence** |
| **Rutter et al, 1970** | UK | School (not private) | 1st phase birth cohorts 2nd phase: screen +/- | Two-phase | 2193  286\* | 10 to  11 | 88% | 7% |
| **Rutter et al, 1975** | UK | School | 1st phase: birth cohort 2nd phase: screen +/- | Two-phase | ILB 1689/ 322\*IOW  1279/136 | 10 | 92% | ILB 25%  ILO 12% |
| **Anderson et al, 1987** | New  Zealand | Birth register | Birth cohort | One-phase | 792 | 11 | 86% | 18% |
| **Offord et al, 1989** | Canada | Census | Stratified clustered | One-phase | 3294 | 4 to 16 | 91% | 18% |
| **Fombonne et al, 1994** | France | School | 1st phase. Random 2nd phase screen +/- | Two-phase | 2441  347\* | 8 to 11 | 88% | 12%,  5.9%\*\* |
| **Costello et al, 1996** | USA | School | Stratified, clustered | Two-phase | 4067  1015\* | 9, 11,  13 | 96%  80% | 20% |
| **Shaffer**  **et al, 1996** | USA | Household | Random | One-phase | 1285 | 9 to 17 | 84% | 32.5%,\*  11.5%\* |
| **Simonoff et al, 1997** | USA | School and volunteers | Random | One-phase | 2762 | 8 to 18 (twins) | 75% | 14% |
| **Verhulst et al, 1997** | Nether- lands | Household | Stratified, clustered | Two-phase | 2709  780\* | 13 to  18 | 82% | 22% |
| **Meltzer**  **et al, 2000** | UK | Child benefit register | Stratified, clustered | One-phase | 10,438 | 5 to 15 | 83% | 9.5%  (ICD), 9.4% (DSM) |
| **Costello et al, 2003** | USA | Household | Random | One-phase | 1420 | 9 to 16 | 81% | 13.3% |
| **Green**  **et al, 2005** | UK | Child benefit register | Stratified, clustered | One-phase | 7,977 | 5 to 16 | 97% | 9.6% |
| **Slobodskaya et al, 2005** | Russia | School | Random | Two-phase | 448, 172\* | 7 to14 | 83% | 15.3% |
| **Bilenberg et al, 2005** | Denmark | School | Stratified, clustered | Two-phase | 621, 135\* | 8 to 9 | Not known | 10.1% |
| **Heierrang et al, 2007** | Norway | School | Random | Two-phase | 9430,  1,011\* | 8 to 10 | 97% | 6% (ICD),  6.1% (DSM) |

\*Second phase \*\*With impairment criteria

Table 2

Epidemiological studies in developing countries (methodological characteristics and key findings)

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Study** | **Setting** | **Sampling frame** | **Design** | **Phase** | **Sample size** | **Age Range** | **Res- ponse rate** | **Prevalence** |
| **Lal et al, 1977** | India | Household | Clustered | Two-phase | 272 | 0 to 12 | 100% | 5.6% |
| **Giel et al, 1981** | Columbia India Sudan Philippines | Primary care | Clustered | Two-phase | 286/117\*  151/39\*  250/27\*  238/68\* | 5 to 15 | >99% | Columbia 29%  India 22%  Sudan 10%  Philippines 15% |
| **Almeida Filho, 1984** | Brazil | Household | Clustered | Two-phase | 828/not known | 5 to 14 | Not known | 3% |
| **Bird et al, 1988** | Puerto Rico | Household | Clustered | Two-phase | 777/386\* | 4 to 16 | 92%,  88% | 9%, 18% |
| **Hackett et al, 1999** | India | Household | Clustered | Two-phase | 1403/  426\* | 8 to 12 | 100% | 9.4%, 5%\*\* |
| **Eapen**  **et al, 2003** | UAE | School | Random | Two-phase | 3278/  199\* | 6 to 15 | 79% | 10.4% |
| **Eapen**  **et al, 2003** | UAE | Household | Random | Two-phase | 620/385\* | 6-18 | 86% | 22.2%, 14.3% |
| **Des Santos et al, 2005** | Brazil | Household | Random | Two-phase | 519/100\* | 5-14 | 100% | 7.0% |
| **Fleitlich et al, 2004** | Brazil | School children | Stratified random | Two-phase | 1,251/100 | 7-14 | 83% | 12.4% |
| **Canino**  **et al, 2004** | Puerto Rico | Household | Clustered random | One-phase | 1,886 | 4-17 | 90.1% | 19.8%, 16.4% |
| **Mullick**  **et al, 2005** | Bangladesh | Community | Random | Two-phase | 922/208\* | 5-10 | 74% | 15% |
| **Sirnath**  **et al, 2005** | India | Community | Random | Two-phase | 2,064/  505\* | 0-16 | 100%,  88.3% | 12.5%, 5.3% |
| **Fekadu**  **et al, 2006** | Ethiopia | Child  labour/ school | Random | One-phase | 528 | 5 -15 | Not known | 12.5%,  20.1% (CL) |
| **Alyahri**  **et al, 2008** | Yemen | School | Random | Two-phase | 1,210/  262\* | 7 -10 | Not known | 15.7% |
| **Pillai**  **et al, 2008** | India | Door to door/ school | Clustered | One-phase | 2048 | 12-16 | 91.1% | 1.81% |

\*Second phase \*\*With impairment criteria, (CL), child labour

tively the low participation rates in developed countries is due to the fact that the participants have the right to ‘opt out’ of research, hence the researchers might be losing out of a number of subjects who would have agreed to participate with some persecution.

One of the recurrent questions in mental health is whether prevalence rates of psychopathology are chang- ing over time—in particular, whether they are increas- ing. To examine this question, studies were grouped into those conducted in 1970–1990, and from 1991-

2008. The mean prevalence studies in 1970–1990 for developed countries were 13.75% and for developing countries 7.9%. In studies spanning 1991–2000 the mean prevalence for developed countries was 15.9% which fell to 10.6% in the last decade form 2001-2008. Interestingly in developing countries during the same period there is a sharp increase in the mean prevalence rates for children and adolescence meeting symptom criteria (mean 11.0%). Therefore we can conclude that although in developing countries the prevalence rates have decreased over time, the reverse is true for most recent studies conducted in the developing world.

## *Substantive findings in developed* countries

Table 1 includes the major epidemiological stud- ies of child psychiatric disorders in the general popula- tion in developed countries. The variation in prevalence rates is due to a number of reasons including case defi- nition and case finding methods used, the age group under study, and the sampling 27.

The most influential epidemiological studies were the Isle of Wight (IOW) in the UK 28-30. The IOW studies began in 1964-65 with a series of surveys of learning, psychiatric and physical disorders in 3,500, 9 to 11 year old children. Approximately 7% of the children were found to have psychiatric disorders of sufficient severity to re- quire clinical assessment and treatment. Although the IOW studies were of enormous historical and research importance, they also had some methodological limita- tions, particularly the lack of diagnostic criteria, which should be considered when interpreting the findings. Later studies adopted either DSM or ICD criteria.

Ten years later, two large studies in New Zealand and Canada found a higher prevalence of DSM-III child psychiatric disorders than previously reported. Both stud- ies used a one-phase design; however, the New Zealand 31 study was restricted to 11 year-old children and a much smaller sample size, compared to the wider age range of 4-16 year olds and larger sample size of the Cana- dian study 32.

The variation in prevalence where impairment cri- teria has been taken into account is clearly noted in the later studies. Fombonne’s 33 study of French school chil- dren found a relatively lower prevalence rate, with im- pairment criteria; this study was based on a large sample of school children using a two stage design. Similarly, two studies carried out on separate locations in the USA, the first study known as the MECA study 34 provided prevalence without and with varied impairment levels. The second study, widely known as the Virgina twin study

35 was based on a school sample of twins aged 8-18 years and used a one-stage design. Like previous stud- ies prevalence rates varied due to the associated im- pairment criteria.

In 1999, the Great Britain Office of National Statis- tics (ONS) 36 conducted a survey of more than 10,000

children as well as their parents and teachers using the Strengths and Difficulties Questionnaire (SDQ) and De- velopment and Well-Being Assessment (DAWBA). This has reported prevalence rates using both ICD-10 and DSM-IV criteria. The survey was replicated with similar findings in 2005 6, since then a number of studies in both developing and developed countries have followed a similar methodology. For example, a study in Russia used the same measures as the British survey but found a 70% higher prevalence of disorders 37. The authors attributed this to higher deprivation factors in child’s im- mediate environment amongst Russian children com- pared to their British counterparts. On the other hand, a Norwegian study with similar methodology found a low prevalence rate of 6.1%. It must also be noted that, al- though both studies were based on school samples, the Russian study had a much smaller sample size and se- lected 7-14 year olds, whereas the Norwegian study covered a larger sample size but was restricted to 8-10 year-old children 38-42.

## *Developing countries*

Table 2 includes the epidemiological studies in the developing world, with a summary of their diagnos- tic procedure. Although the importance of early detec- tion has been recognized worldwide, until recently there was little systematic research on child psychiatric disor- ders in developing countries43. Unlike studies in the western world, earlier child epidemiological surveys in developing countries from the mid 70’s to mid 80’s used clinical interviews to reach a psychiatric diagnosis. In 1988, Bird carried out a household survey of children in Puerto Rico using instruments widely used in developed countries, and reported prevalence rates based on im- pairment criteria. Like studies in the western countries, prevalence rates varied widely when impairment levels were considered. The same was true for later studies that also showed wide variation in prevalence with and without impairment 44-48. Two studies by the same re- search team 49-50 were carried out in localities in United Arab Emirates. These included a different sample frame- work, which explains the substantial difference in preva- lence rates, as well as the inclusion of impairment crite- ria in the later study.

Since the mid 2000’s a number of studies have been carried out in developing countries that have used instruments and methodology similar to those of west- ern countries. Overall, most studies form developing countries have reported high prevalence rates than those in Western countries. However, there have been some exceptions to this pattern. For example the Brazil- ian IIhade Mare study 9 carried out a household survey using the same tools as the British study, but reported a much lower prevalence rate of 7% for DSM-IV based psychiatric disorders. Interestingly, a recent Indian study of adolescents using a one stage design provided the lowest prevalence of only 1.8% psychiatric disorders. This study was limited to 12-16 year old, and data was

collected from school as well as door to door survey. Although, studies have suggested that adolescents nor- mally display higher rates of psychiatric disorder, how- ever, the authors of this study concluded that strong fam- ily support was a critical factor associated with this low prevalence rate.

## *Child mental health in Pakistan*

Pakistan is a signatory to the Alma-Ata Declara- tion of 1978, which called on the global community to achieve health for all by the year 2000. Primary health care was the designated model in achieving this goal, and included mental health as one of its components. Recent years have seen phenomenal improvement in the provision of paediatric health in Pakistan, although the area of paediatric/child mental health remains ne- glected 51.

In Pakistan, the current scarcity of child mental health services mirrors the scarcity of epidemiological studies. There is a lack of mental health services for children, partly reflecting a lack of adequate information about the magnitude of the needs that should be met, or even the most basic information about what are the main behavioural and emotional problems.

Psychiatric research in Pakistan is also affected by the lack of appropriate tools. A recent systematic re- view of psychiatric ratings scales in Urdu (official lan- guage of Pakistan) indentified only nineteen question- naires. Six of these questionnaires were developed in- digenously in Urdu while thirteen were translated from English. All the tools were for adult populations with the exception of the Strength and Difficulties Questionnaire (SDQ), designed to screen emotional and behavioural problems in children which has been translated and validated in Pakistan52. More recently the author in this present review has been involved in a project that trans- lated the Kiddie Schedule of Affective Disorders & Schizophrenia for School-Age Children (6-18 years) (K- SADS-P-IV) diagnostic interview into Urdu53,and another study that compared the widely used SDQ and CBCL screening questionnaire on sample of school children in Pakistan 54.

A review of literature revealed only one study car- ried out in Lahore, capital city of the province of Punjab which aimed to establish the prevalence of emotional and behavioural problems in school children using the Rutter rating scales. This found a prevalence of 9.3%, with antisocial problems being the commonest mental health presentation55. Another study provided an esti- mate of mental retardation/learning disability 19.0/1,000 children in Karachi, which was much higher than rates reported in other countries 56.

There are several possible causes that may con- tribute to the high rates of mental health problems in Pakistan, including interfamily marriages, high rates of birth injuries, economic decline and high rates of unem-

ployment, rapidly changing social and cultural values, fragmentation of the family system, and loss of religious values. The last two decades have seen mass migration of people from rural to the urban areas. Research in both developing and developed countries has provided strong evidence that the aetiology of all mental disor- ders is ‘biosocial’ and that the quality of a child’s social environment is closely related to risk of mental health problems. Low income countries like Pakistan face a multitude of social adversities, including poverty, mal- nutrition, rapid urbanization, educational deprivation, drug abuse and increased crime.

The majority of children exposed to such factors are at an increased risk of mental heath problems 57-58. Available evidence suggests that specific cultural and socio demographic variables are important in determin- ing the risk in any given community (Gureje O et al, 1995, Eapen et al, 2003 & Fleitlich et al, 2004) 8,49,59. The Lahore study used a questionnaire as the only measure for emotional and behavioural problems and indicated a wide range of mental health problems among this age group. No such study has been carried out since then. The timing is therefore right for a larger-scale and better designed epidemiological study on the mental health needs of Pakistani school children. This should address the important issues, including questions like; what is the prevalence of behavioural and emotional disorders amongst Pakistani school children? And how do they correlate with specific cultural and socio-economic fac- tors?

Research evidence from countries around the world has proved that it is possible to carry out larger scale studies using similar methodology and widely es- tablished standardized measures, enabling cross cul- tural comparisons as well as facilitating policy makers and service providers.

# CONCLUSION

Children and adolescents with positive mental health are able to achieve and maintain optimal psy- chological and social functioning and well-being. They have a sense of identity and self worth, sound family and peer relationships, an ability to be productive and to learn, and a capacity to tackle developmental challenges and use cultural resources to maximize growth. More- over, children’s mental health is crucial for their active social and economic participation. For example, one study demonstrated increased costs to society for chil- dren with conduct disorder 60. In view of these needs there has been a global requirement to set out clearly defined polices for child mental health and well being, which would be beneficial to the individual as well as society and country at large. One survey revealed that no country in the world has a clearly defined mental health policy pertaining uniquely to children and ado- lescents61. However, 34 countries (7% of countries world- wide) were found to have identifiable mental health poli-

cies, which may have some beneficial impact on chil- dren and adolescents. The absence of clearly defined policies is unfortunate, since a policy for child mental health can promote the well-being of all children within a country. This review provides an overview of some of the major child mental health studies conducted glo- bally. In the last few years a number of studies in devel- oping countries (e.g. Brazil, Puerto Rico, India, Bangladesh, Al-Ain, Yemen) have adopted similar meth- ods to those used in developed countries, with large and representative samples and widely established and standardized measures, thus enabling cross cultural comparisons. This enables us to take an overview of both the common and distinguishing features of these studies. There are some sound epidemiological studies in developing countries indicating that these are fea- sible and potentially worthwhile, and highlighting the need to carry out similar studies in other regions.

Child psychiatric epidemiology indeed has made considerable progress in the 40 years since the land- mark Isle of Wight study. In the last few years a number of studies in developing countries have adopted similar methods to those used in developed countries, but in many regions research on the epidemiology of child and adolescent psychiatric disorder is very much a jour- ney in progress. There is an urgent need for developing countries like Pakistan to consider large scale epide- miological studies on child mental health issues in or- der to determine the prevalence of psychiatric problems in children. The findings of such a study will enable policy makers and stake holder to take appropriate measures required to develop mental health services in the coun- try to ensure the needs of all children are meet as out- lined by the United Nations (UN) Convention on the Rights of the Child2.

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