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 conducted 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. According 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 implementing are fully articulated in the United Nations (UN) Convention on the Rights of the Child [2]. This is universally applicable to children living in all cultures and societies, 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 nutritional status and health education in many regions. This change has enabled societies to consider the mental health of children as a priority issue. Most nations and leading organizations acknowledge that child's physical health can be affected by traumas, genetic disturbances, toxins and illness. However, only recently it has been understood that these same stressors can affect mental health, and have long-lasting repercussions. When risk factors and vulnerabilities outweigh or overcome factors that are protective or that increase resilience, 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 problems 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 disorders". The WHO report helped direct international focus on child and adolescent mental health issues as an essential component of overall health and growth. This report pointed out that the *"Lack of attention to the mental health of children and adolescents may lead to mental disorders with lifelong consequences, undermines compliance 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 leading cause of death among adolescents [4]. Depression often has an onset in adolescence, across diverse countries, 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 issues such as sample size, sampling framework, age,

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instruments used and diagnostic criteria to define 'caseness'. Studies also differ in their reporting style; some provide separate prevalence rates based on parent, teacher and child reports, while more recent and sound studies[6] are based on combined corroborated information. Other studies provide prevalence rates with and without impairment. These differences make comparison between studies difficult. Understanding the prevalence of psychiatric disorders among children and adolescents is an essential component of a sound public 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 collegues[7] conducted one of the most comprehensive review of epidemiological studies of child and adolescent disorders. This study found tremendous variations in prevalence rates rating form 1-50% with a mean prevalence 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 western countries. Overall, most studies from developing countries have reported high prevalence rates than those in Western countries. These include two researches from Brazil, the Taubate study [8], Brazilian Ilhade Mare study [9], India [10], Bangladesh [11], Puerto Rico [12], Ethiopia [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 prevalence 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 summarized 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 designs, 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 almost 32.5% without impairment and decreased to as low as 5% in studies that consider impairment criteria. The most common sampling frame in developed countries 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 studies 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 financial resources. School based samples are gaining popularity in developing countries, though their limitation of including only school going children; therefore, potentially excluding at risk groups of children is widely acknowledged. 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 limitations discussed earlier.

The Rutter scales were commonly used as screening 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 Affective Disorders and Schizophrenia (K-SADS) [21] or the Development and Well-Being Assessment (DAWBA) [22]. Most studies in both developed and developing countries adopt DSM-III-R [23] DSM-IV[24] or ICD-10[25] criteria, generally with some associated impairment criteria. In previous studies, the CGAS [26] was popularly used to measure 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 normally 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	Response 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 changing over time—in particular, whether they are increasing. 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 studies of child psychiatric disorders in the general population in developed countries. The variation in prevalence rates is due to a number of reasons including case definition 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 require clinical assessment and treatment. Although the IOW studies were of enormous historical and research importance, they also had some methodological limitations, 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 studies 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 Canadian study [32].

The variation in prevalence where impairment criteria has been taken into account is clearly noted in the later studies. Fombonne's [33] study of French school children found a relatively lower prevalence rate, with impairment 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 studies prevalence rates varied due to the associated impairment criteria.

In 1999, the Great Britain Office of National Statistics (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 Development 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 immediate environment amongst Russian children compared 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, although both studies were based on school samples, the Russian study had a much smaller sample size and selected 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 diagnostic procedure. Although the importance of early detection has been recognized worldwide, until recently there was little systematic research on child psychiatric disorders in developing countries[43]. 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 impairment 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 research team [49-50] were carried out in localities in United Arab Emirates. These included a different sample framework, which explains the substantial difference in prevalence rates, as well as the inclusion of impairment criteria 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 western 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 Brazilian Ilhade 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 normally display higher rates of psychiatric disorder, however, the authors of this study concluded that strong family support was a critical factor associated with this low prevalence rate.

Child mental health in Pakistan

Pakistan is a signatory to the Alma-Ata Declaration 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 neglected [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 review of psychiatric ratings scales in Urdu (official language of Pakistan) indentified only nineteen questionnaires. Six of these questionnaires were developed indigenously 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 Pakistan[52]. More recently the author in this present review has been involved in a project that translated the Kiddie Schedule of Affective Disorders & Schizophrenia for School-Age Children (6-18 years) (K-SADS-P-IV) diagnostic interview into Urdu[53], 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 carried 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 presentation[55]. Another study provided an estimate 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 contribute to the high rates of mental health problems in Pakistan, including interfamily marriages, high rates of birth injuries, economic decline and high rates of unemployment, 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 disorders 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, malnutrition, 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 determining 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 factors?

Research evidence from countries around the world has proved that it is possible to carry out larger scale studies using similar methodology and widely established standardized measures, enabling cross cultural 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 psychological 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. Moreover, children's mental health is crucial for their active social and economic participation. For example, one study demonstrated increased costs to society for children 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 adolescents[61]. However, 34 countries (7% of countries worldwide) were found to have identifiable mental health poli-

cies, which may have some beneficial impact on children 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 globally. In the last few years a number of studies in developing countries (e.g. Brazil, Puerto Rico, India, Bangladesh, Al-Ain, Yemen) 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. 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 feasible 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 landmark 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 journey in progress. There is an urgent need for developing countries like Pakistan to consider large scale epidemiological studies on child mental health issues in order 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 country to ensure the needs of all children are meet as outlined by the United Nations (UN) Convention on the Rights of the Child[2].

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