PREVALENCE OF MENTAL HEALTH DISORDERS AMONGST 5-11 YEAR OLD PRIMARY SCHOOL CHILDREN IN KARACHI, PAKISTAN

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ABSTRACT

Objective: The main purpose of this study was to estimate the prevalence of common psychiatric disorders among Pakistani primary school children.

Design: Two-stage cross sectional survey.

Place and Duration of Study: The two-stage study was conducted in private, government and community primary schools in Karachi Pakistan during January 2006 to June 2007.

Subjects and Methods: A two-phase cross sectional survey of 5-11 year-old primary school children in Karachi was carried out. In the first screening phase, broad morbidity rates were measured using the Strength and Difficulties Questionnaire (SDQ). A total of 968 parents and 793 teachers participated in the study. In the second phase, 100 children were randomly selected for a diagnostic interview using the Urdu version of Kiddie Schedule of Affective Disorders & Schizophrenia for School-Age Children.

Results: Results indicated a weighted prevalence of 17% common child psychiatric disorder among primary school children in Pakistan, with a preponderance of behavioural disorders, followed by anxiety and mood disorders.

Conclusions: This exploratory study suggests estimates of child psychiatric disorders in Pakistan are slightly higher than other countries, and highlights the necessity of establishing service networks to meet children's mental health needs.

Key words: Mental health, Primary school children.

INTRODUCTION

Although the importance of early detection of child psychiatric disorders has been recognized worldwide[1], only a small number of epidemiological studies have been carried out in developing countries in recent years, using instruments and methodologies similar to those of western countries. Overall, most such studies from developing countries reported high prevalence rates than those in western countries, which have been estimated at approximately 10% [2]. These include research from Brazil [3], Yemen[4], India [5], Bangladesh [6], Puerto Rico[7], Ethiopia [8], and Mexico[9]. However, there have been some exceptions to this trend. For example, another Brazilian study [10] carried out a household survey in rural settings and reported a lower prevalence rate of 7% for DSM-IV based psychiatric disorders, and attributed the findings to the type of settings and its closely knit social support networks. A study of Indian adolescents using a one-stage design provided the lowest prevalence of only 1.8%, which was also associated with strong family support [11].

In Pakistan, the current scarcity of child mental health services mirrors the limitation of epidemiological evidence-base studies on the magnitude of children's needs and how these should be met [12]. Though country wide data are not available in the literature, a door-to-door survey in Karachi reported rates of learning disabilities to be higher in children than in other countries[13]. The only school-based study that measured emotional and behavioural difficulties was conducted more than a decade ago, and reported an estimate of 9% of children with behavioural and emotional problems [14]. The increasing public concern on child mental health has highlighted the need for more accurate and up-to-date knowledge on prevalence rates [15]. This was the rationale for this two-stage epidemiological study, which aimed to establish the prevalence of common psychiatric disorders amongst primary school children in Karachi.

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SUBJECTS AND METHODS

Setting and Sampling Strategy

The study was conducted in primary schools of Karachi for children aged 5-11 years. The educational

system in Pakistan comprises of public or government, community (NGO), and private schools. In order to maximise the representativeness of the sample, all three main school types were invited to participate. Central Karachi has a total of 1,380 primary schools located across the city [16]. Of those overall 27 schools from each of the three school groups were randomly selected. In total, 22 schools agreed to participate, including seven private, seven government and eight community schools. Five of the selected schools, including two private and three community schools, declined to take part in the study, asserting that the topic might upset parents or was irrelevant to their pupils (Figure 1).

After schools had consented to participate in the study, the researcher (SH) identified the sample through the attendance register. Parents of selected children were sent an information sheet and a consent form asking whether they were willing to participate, and whether they gave permission for their child's teacher to be approached. Parents who provided informed consent were invited to a meeting held at the school for parents and teachers. Following the brief meeting, questionnaires were completed by parents. Teacher questionnaires were distributed and collected from the school at a later date. A total sample of 2,188 children aged 5-11 years were selected. Of those, parents of 1003 children agreed to take part, and in the first screening stage, data was collected from 968 parents and 793 teachers. In the second stage, a sample of 100 children was randomly selected for a detailed diagnostic interview.

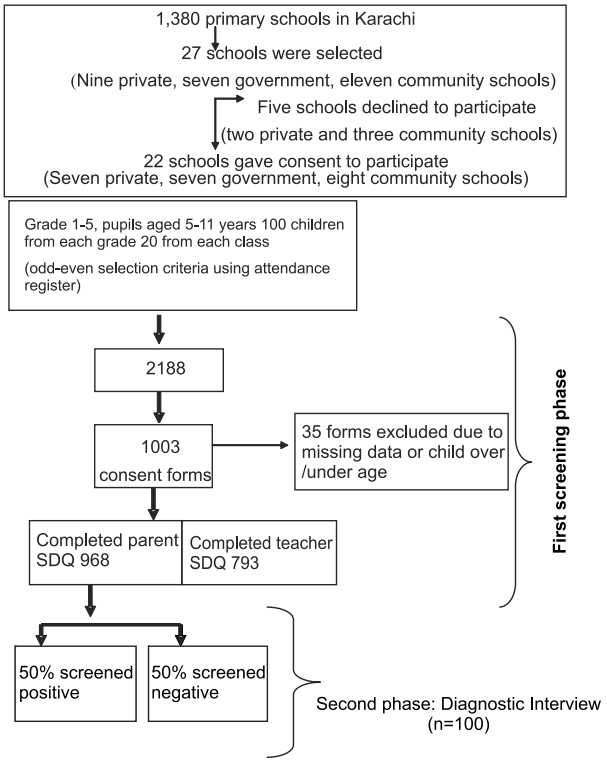

Fig. 1: Sampling frame for first phase (screening) and second phase (diagnostic interviews)

MEASURES

Screening Phase

The first screening phase was conducted using the Urdu version of the Strengths and Difficulties Questionnaire[17]. This well established and validated mental health measure includes 25 attributes, five positive and 20 negative. The 20 difficulties items are grouped into four subscales for conduct, hyperactivity, emotional and peer problems. The SDQ can be completed by parents or teachers of 4-16 year-olds. The SDQ has been shown to have acceptable reliability and validity[17], and has previously been used in Pakistan[18]. This was completed by parents and teachers. The findings of the screening phase have been published elsewhere[19-20].

Interview Phase

Recruitment for the second phase depended on the SDQ results of the screening phase in order to maximize case finding efficiency. Due to lack of resources and time constraints, it was not possible to interview all the cases. Therefore, a stratified random sampling technique was applied. A sample of 100 children, consisting of 50% randomly selected screen-positive (SDQ high scorers >17) and 50% randomly selected screen negative (SDQ low scorers <17) on the parent SDQ were assessed by the researcher using the Kiddie Schedule of Affective Disorders & Schizophrenia for School-Age Children (6-18 years) (K-SADS-P-IV-R). (Ambrosini and Dixon, 1996[21]). The K-SADS has been translated in many languages, including Urdu, and its reliability and validity have been established in a number of countries[22-24].

In the present study, the three broad diagnostic categories covering the common types of affective, anxiety and behavioural disorders in this age group were included. A multiple-forward translation 'technique was used. The K-SADS-IVR author, Professor Ambrosini, was involved throughout the linguistic validation process, whenever further clarification was needed. Each section was translated by at least two members of the panel. The researcher (SH) then compared the two versions, and revised the most suitably translated and culturally accepted items. Those items that failed to achieve consensus in translation were amended and reworded/ phrased, based on a unanimous decision by the panel members. Details of the translation and adaptation procedure can be found in Hussein & Vostanis[25]. The interview was conducted with mothers.

Children's Global Assessment Scale (C-GAS)

The Children's Global Assessment Scale (CGAS) is one of the most widely used measures of the overall severity of impairment in children[26]. This is a global measure of psychosocial functioning for children aged 4-16 years. The single numerical score representing severity of impairment ranges from 1 (most impaired) to 100 (healthiest). For example, a score of 61–70 indicates that the child has some difficulty in a single area but is

generally functioning pretty well. Scores above 70 are considered to be within normal range, whereas scores on the low end of the continuum indicate a need for constant (1-10) or considerable supervision (11–20). The C-GAS was used to assimilate and synthesize knowledge about the child's psychosocial functioning, and condense it into a single index.

Statistical Analysis

Descriptive statistics were computed for the socio-demographic characteristics of parents and teachers. Date was weighted to adjust for the disproportionate sampling according to school type and the over-sampling of SDQ high scorers. To analyze sample survey data, the SURVEYFREQ procedure in the SAS programme was used, which incorporated the sample design into the analysis[27]. The data was analysed using the software package SPSS version 14.5 and SAS version 9.0.

RESULTS

Weighted DSM-IV prevalence of common child psychiatric disorders

Of the 100 children interviewed at the second stage, at least one DSM-IV diagnosis was present in 26 children, 16 male and 10 female, representing a prevalence rate of 17.3% (95% CI = 6.2-28.3) for Karachi as a whole, after adjusting for the over sampling of SDQ high scores and school type, and weighting them back to the general population. Of the broad diagnostic categories, behavioural disorders were the most common (10.2%; N=10, male=9, female=1), followed by anxiety disorders (4.2%; N=8, male=3, female=5) and mood disorders (2.9%, N=2, male=0, female=2). Among the individual disorders, ADHD was the most common diagnosis (5.5%), followed by oppositional defiant disorder (ODD) (4.7%), and of the emotional disorders, generalized anxiety disorder (3.5%) was the most common diagnoses (Table 1).

Prevalence rates according to gender and school type

Since the second stage sample consisted of 100 children, there was not enough power to conduct statistical tests for comparison of prevalence rates according to schools type and gender. Descriptive analysis revealed that overall, the prevalence was slightly higher in females (17.6%, 95% CI=3.6-31.6) compared to males (16.9%, 95%CI=0.0-33.8). The prevalence of behavioural disorders, including ODD and ADHD, was markedly higher in males rather the females. In contrast, anxiety and mood disorders were higher in females.

Children attending public (government) schools had the highest prevalence of any disorder (21.2%, 95% CI=6.5-35.9), followed by community (NGO) schools (19.1%, 95% CI=5.9-32.4), and private school children (13.9%, 95% CI=0.0-29.3). Among children attending private schools, ADHD (6.1%, 95% CI=0.1-14.7) was the most common diagnosis, followed by anxiety (4.6%, 95% CI=0.0–11.7), and ODD (3.1%, 95% CI=0.0–8.5).

Table 1
DSM-IV prevalence of child psychiatric disorders using the K-SADS diagnostic interview, with CGAS impairment

Disorders	Prevalence rates	95% CI
Any Disorder	17.3%	(6.2- 28.3)
Anxiety Disorders	4.2%	(0.0 - 8.7)
Generalized	3.5%	(1.0 – 5.3)
Avoidant	0.2%	(0.1 – 0.4)
Separation	0.1%	(0.0 – 0.2)
Phobia	0.1%	(0.0 – 0.2)
Over anxious	0.3%	(0.0 – 0.6)
Behavioural Disorders	10.2%	(6.3-15.4)
ADHD	5.5%	(0.3 -10.7)
ODD	4.7%	(0.0 -9.5)
Mood Disorders	2.9%	(0.0 -7.0)

ODD was the most frequent diagnosis for children attending community schools (12.2%, 95%CI=1.7-27.6), followed by anxiety disorders (7.0%, 95%CI=0.0-14.7). None of the children received a diagnosis of ADHD or mood disorders. Most of the government school children received a diagnosis of ODD (6.0%, 95%CI=0.0-14.6) or mood disorder (6.7%, 95%CI=0.0-16.0), followed by ADHD (5.2%, 95%CI= 0.1-12.5), and anxiety disorder (3.4%, 95%CI=0.1-10.2).

DISCUSSION

The findings suggest that around 17% of Pakistani 5-11 year-olds have emotional and behavioural problems that are severe enough to result in significant distress or social impairment, thereby warranting a clinical assessment and possible intervention. Previous epidemiological studies of mental health in developing countries have reported overall prevalence ranging from 7% in Brazil [10] to as high as 17% in Puerto-Rico[7]. Thus, our estimate of 17%, although on the high end, may fall within the range of previous studies in developing countries, at least in urban areas. This wide variation could also, at least partly, reflect methodological differences, including the sampling framework, measurement and cross-cultural diagnostic issues[28].

The profile of child psychiatric disorders found in Karachi resembles those identified in other parts of the

world in both developed and developing countries, with a preponderance of behavioural disorders, followed by anxiety and mood disorders. The prevalence of ADHD among this sample of Pakistani 5-11 year-old school children was 5%, which is higher than previously reported[2-29]. Previous studies have reported that prevalence estimates for ADHD are highly dependent on the age of the sample, with higher rates for younger children; and the method of ascertainment, including the diagnostic criteria applied, with higher rates for studies using DSM-IV as opposed to ICD-10 criteria[30-32].

Conduct disorder was the most frequent diagnosis for children attending community and government schools. Males were at a higher risk of conduct problems compared to females. These findings are also consistent with studies from other countries[2-3]. The variation in the prevalence of oppositional defiant and conduct disorders in some studies can be explained by the different classification systems and the different diagnostic tools, as well as the age of the sample. Higher prevalence rates have been reported in a previous Pakistani study[14]. Clinical studies in Pakistan have shown that although most of the children were referred for behavioural problems but not diagnosed with disruptive disorders. This seems to indicate that mental health or developmental problems were masked by the behaviour that was misinterpreted as naughtiness[15]. This emphasis the need to take into account the cultural factors including, social expectations of behaviour while training teachers and parents to identify children with mental health problems in order to make appropriate and timely referrals. In contrast, the low rates of conduct disorders amongst children attending private schools are in line with other studies, suggesting that socio-economic deprivations common in government and community schools pupils and staff may serve as risk factors for behavioural disorders[6].

This study found higher rates of emotional disorders, including both anxiety and mood, compared to rates in other countries. Consistent with previous findings, rates were higher amongst females compared to males. Although there are no previous reported studies of anxiety and mood disorders amongst Pakistani children, studies in adult populations also found a higher prevalence than from other countries. In a review conducted by Mirza and Jenkins[33], they reported that socio-economic adversity and relationships problems were major risk factors for anxiety and depressive disorders amongst Pakistani adults, whereas supportive family and friends may protect against the development of these disorders. It is thus essential to also investigate these risk and protective factors in more detail amongst Pakistani children.

LIMITATIONS

Although all Pakistani 5-11 year-old children are legally obliged to attend school, official statistics from the Ministry of Education, report that only 79% of them are enrolled in mainstream schools in the province of Sindh, of which Karachi is the capital[34]. It is thus plausible that we underestimated the prevalence of disorders in Karachi by sampling from school registers, thus missing 21% of 5-11 year-olds who were not attending schools, perhaps due to lack of facilities, learning difficulties or child labour [35]. The response rate was 45.4%, which is much lower than studies for other countries that have used a similar design. This could be due to stigma, low literacy levels or lack of awareness amongst the general population. Since no record was maintained for the characteristics of non respondents, it could be that the respondents were more motivated and aware regarding mental health issues; therefore, they could have over-estimated the symptoms. Although in the screening phase we collected data from both parents and teachers, this was not the case in the second phase, where diagnostic interviews were conducted with mothers to derive prevalence estimates. In this way, we may have omitted some cases wherein the psychopathology was predominantly school-related, or child-reported. A further limitation concerns the sample size of the study, which consisted of nearly 1,000 children in the screening phase, but only 100 children in the diagnostic phase, which was insufficient to identify rare disorders. Further studies should be based on larger and more accurate sample sizes, from different groups, including adolescents.

IMPLICATIONS OF THE STUDY

The findings of this study of Pakistani school children indicate a high demand on health, social and educational services to meet their needs. Such high demand and level of unmet needs were raised by the World Health Organisation Atlas project report, which developed the first profile of required resources for child mental services[36]. Currently, policy makers in Pakistan and other developing countries lack a systematic evidence-base to support service planning, and child mental health is not as yet high on the service priority agenda[37]. The findings of our study on differences of child mental health problems between the three main school types highlight the importance of providing flexible interventions and services for different educational institutions. There is also an urgent need to train teachers to be able to identify child mental health problems, apply school-based management techniques, and make appropriate and timely referrals of children with more complex disorders to the sparse specialist services[38]. Child mental health training for both specialist and primary care practitioners is being established in many countries, including Pakistan 2009[39,40]. In the future, it will be important not only to develop specialist services but also to disseminate assessment and treatment skills more widely to teachers, paediatricians, adult psychiatrists, psychologists and traditional healers to meet the needs of all children[15,41]. An essential future priority is also the establishment of multidisciplinary child mental health

teams. This will require the emergence and training of a range of professionals.

Children with ill mental health have an adverse effect on the country's productivity and economic stability. Further studies can enhance the understanding of the patterns of co-morbidity, perceived treatment needs and psychosocial correlates. The area of scholastic difficulties, including the impact of emotional and behavioural problems on academic performance, as well as co-morbid learning difficulties warrants further exploration. A longitudinal cohort study should be the next step in understanding the mechanisms and prognostic factors involved in child disorders in Pakistan and other developing countries.

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