A cross-sectional survey of children aged 5–11 years attending 22 primary schools was carried out in Karachi, Pakistan. In the first (screening) phase, broad morbidity rates were measured using the Strengths and Difficulties Questionnaire (SDQ). A total of 968 parents and 793 teachers participated. In the second phase, 100 children were selected for a diagnostic interview using the Kiddie Schedule of Affective Disorders & Schizophrenia for School-Age Children. A weighted rate of 17% (95% CI 6.2–28.3%) was found for common child psychiatric disorders, with a preponderance of behavioural disorders, followed by anxiety and mood disorders. The feasibility study established methods and preliminary rates of child psychiatric disorders, which appear higher than in other countries. School surveys could be an important source of data in low-income countries and form the basis for interventions in the absence of specialist services.

A review of non-clinic-based epidemiological studies from 51 Asian countries found that the prevalence of child psychiatric disorders ranged from 10% to 20% (Srinath et al, 2010). Most such studies from low-income countries have reported higher prevalence rates than studies conducted in high-income countries, which have, overall, estimated the prevalence at approximately 10% (Green et al, 2005).

In Pakistan, the scarcity of child mental health services mirrors the limitation of evidence-based studies on children’s needs and how these should be met (Jawaid & Rehman, 2007). A survey conducted two decades ago produced an estimate of 9% for the prevalence of behavioural and emotional problems among children (Javadi et al, 1992).

The increasing public concern over child mental health in Pakistan has highlighted the need for more accurate and up-to-date knowledge on prevalence rates (Syed et al, 2007). This was the rationale for the present two-stage preliminary study, which aimed to develop and test methods, and to establish the rates of common psychiatric disorders among children at primary school in Karachi. The long-term objective is to apply these methods in a later definitive epidemiological study.

Method

Setting and sampling strategy

The study was conducted in Karachi primary schools (for children aged 5–11 years). The educational system in Pakistan comprises public or government schools, community schools (typically run by non-governmental organisations) and private schools. In order to maximise the representativeness of the sample, schools of all three types were invited to participate. Table 1 provides the demographic profile of the study sample. Central Karachi has a total of 1380 primary schools. Twenty-seven schools were randomly selected and 22 agreed to participate – seven private, seven government and eight community schools. The five schools (two private and three community schools) that declined to take part in the study asserted that the topic might upset parents or was irrelevant to their pupils. After schools had consented to participate, the researcher (SAH) identified the sample of children using a pseudo-random technique, based on alternating odd–even serial numbers on the attendance register; school authorities selected this technique for pragmatic reasons. A sample of 2188 children aged 5–11 years was selected. The parents of 1005 of these children agreed to participate, and in the first screening stage data were collected from 908 parents and 793 teachers.
Children’s Global Assessment Scale (C-GAS)

The Children’s Global Assessment Scale (C-GAS) (Shaffer et al, 1983) was used by the researcher (who had been trained in its use) to assimilate and synthesise knowledge about the child’s psychosocial functioning, and to condense it into a single index.

Statistical analysis

Descriptive statistics were computed for sociodemographic characteristics. To calculate likely prevalence rates in this study, the data were weighted at two stages: first, to take into account disproportionate sampling from within gender and school groups; and subsequently, in the calculation of weights to take into account disproportionate sampling of SDQ scores within the gender/school group strata. To analyse the sample survey data, the SURVEYFREQ procedure in SAS 9.1 was used, which incorporated the sample design into the analysis. Descriptive statistics were generated using SPSS version 14.5.

Results

Weighted DSM-IV rates of common child psychiatric disorders

Of the 100 children interviewed at stage 2, 26 had at least one DSM-IV diagnosis (16 boys and 10 girls), giving a prevalence rate of 17.3% for Karachi as a whole (95% CI 6.2–28.3%), after adjusting for the oversampling of SDQ high scores and school type, and weighting them back to the general population (Table 2). All but one child diagnosed as a clinical ‘case’ had been ‘screen positive’ on the SDQ. Of the broad diagnostic categories, behavioural disorders were the most common (10.2%), followed by anxiety (4.2%) and mood disorders (2.9%).

Rates according to gender and school type

Since the second-stage sample consisted of 100 children, there was limited power to conduct statistical tests for comparison of prevalence rates according to school type and gender. Descriptive analysis suggested that, overall, the prevalence was

Table 2

DSM-IV rates of child psychiatric disorders using the K-SADS diagnostic interview, with C-GAS impairment

| Disorders                        | Prevalence rate (%) | 95% CI (%) |
|---------------------------------|---------------------|------------|
| Any disorder                    | 17.3                | 6.2–28.3   |
| Anxiety disorders               | 4.7                 | 0.0–8.7    |
| Generalised                     | 3.5                 | 1.0–5.3    |
| Avoidant                        | 0.2                 | 0.0–0.6    |
| Separation                      | 0.1                 | 0.0–0.2    |
| Phobia                          | 0.1                 | 0.0–0.2    |
| Overanxious                     | 0.3                 | 0.0–0.6    |
| Behavioural disorders           | 10.2                | 6.3–15.4   |
| Attention-deficit hyperactivity disorder | 5.5                 | 0.3–10.7   |
| Oppositional defiant disorder   | 4.7                 | 0.0–9.5    |
| Mood disorders                  | 2.9                 | 0.0–7.0    |

Table 1

Sociodemographic characteristics of the sample (n = 968)

| Gender                  | n (%)       |
|-------------------------|-------------|
| Male                    | 515 (53.2)  |
| Female                  | 453 (46.8)  |

| School type             | n (%)       |
|-------------------------|-------------|
| Private school          | 272 (28.1)  |
| Community school        | 368 (38.0)  |
| Government school       | 328 (33.9)  |

| Mother’s education      | n (%)       |
|-------------------------|-------------|
| Not educated            | 591 (61.1)  |
| <10 years of schooling  | 125 (12.9)  |
| 10–12 years of schooling| 176 (18.2)  |
| Graduate degree/higher  | 76 (7.9)    |

| Father’s education      | n (%)       |
|-------------------------|-------------|
| Not educated            | 340 (35.1)  |
| <10 years of schooling  | 264 (27.3)  |
| 10–12 years of schooling| 207 (21.4)  |
| Graduate degree/higher  | 157 (16.2)  |

| Father’s occupation     | n (%)       |
|-------------------------|-------------|
| Unemployed              | 258 (26.7)  |
| Business                | 131 (13.5)  |
| Government              | 139 (14.4)  |
| Skilled labour          | 176 (18.2)  |
| Private employment      | 264 (27.3)  |

| Mother’s occupation     | n (%)       |
|-------------------------|-------------|
| Unemployed              | 725 (74.9)  |
| Business                | 1 (0.1)     |
| Government              | 45 (4.6)    |
| Skilled labour          | 154 (15.9)  |
| Private employment      | 43 (4.4)    |

Measures

Screening phase

The first phase was conducted using the Urdu version of the Strengths and Difficulties Questionnaire (SDQ; Goodman, 2001), completed by parents and teachers. The SDQ has acceptable reliability and validity and has been previously used in Pakistan (Samad et al, 2005).

Interview phase

Recruitment for the second phase depended on the SDQ results of the screening phase. Because of lack of resources and time constraints, it was not possible to interview all the children that the SDQ recorded as ‘cases’. Therefore, a sample of 100 children was randomly selected (via computer randomisation), comprising 50 SDQ high scorers (scoring 17 or more; screen positive) and 50 SDQ low scorers (scoring < 17; screen negative). This sample was further assessed by the researcher using the Kiddie Schedule of Affective Disorders and Schizophrenia for School-Age Children (6–18 years) (K-SADS-P-IV-R; Ambrosini & Dixon, 1996). The in-depth assessment interview was carried out at the school or home as per parents’ choice. All parents invited to take part in this phase agreed to do so. The interview was conducted with mothers, because of their availability and proximity to the child. All interviews were conducted by the researcher (SAH), who maintained regular communication with Professor Ambrosini for advice and support for the effective use of the instrument.

Details of the translation and adaptation procedure have been published separately (Hussein & Vostanis, 2008).

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Brief training sessions can improve accuracy in the identification of children and young people with mental health problems, on the part of both teachers and general practitioners. Teachers who attend a brief course on child mental health have been shown to be better able to identify behavioural difficulties and to manage them in the classroom. The effectiveness of such interventions indicates that it is possible to conduct school-based interventions using limited resources. These findings are particularly relevant to low-income countries.

Children with mental ill-health have an adverse effect on a country's productivity and economic stability. Further studies will enhance our understanding of the patterns of comorbidity, perceived treatment needs and psychosocial correlates. A comprehensive cross-sectional study is needed in Pakistan with a more sound methodology, a wider sample and some exploration of culture-specific aspects of behaviour indicating difficulty or distress. A qualitative study focusing on parental attitudes to and perceptions of mental health problems in children and adolescents would provide the information needed to design an appropriate longitudinal study to investigate the prevalence of and risk factors for child mental health problems in Pakistan. These future studies will help policymakers to develop services and interventions.

Discussion

There is little information on child mental health problems in Pakistan. This is the first study of its kind conducted in Karachi on school children. It found that around 17% of Pakistani children aged 5–11 years 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. A review of non-clinic-based epidemiological studies from 51 Asian countries showed that the prevalence of mental health problems/disorders is in the range 10–20% (Srinath et al, 2010). Thus, our estimate of 17%, although at the high end, falls within the range of results from previous studies conducted in low-income countries.

Consistent with previous studies in Pakistan, behavioural disorder was the most frequent diagnosis. However, clinical studies in Pakistan have shown that, although most referred children have behavioural problems, substantial proportions are not diagnosed with disruptive disorders. This seems to indicate that mental health or developmental problems may have been masked by behaviour that was misinterpreted as oppositional (Syed et al, 2007). This study found higher rates of emotional disorders, including both anxiety and mood disorders, than have studies conducted in other countries. In their review, Mirza & Jenkins (2004) reported that socioeconomic adversity and relationship problems were major risk factors for anxiety and depressive disorders among Pakistani adults. It is essential that these risk and protective factors are investigated among Pakistani children.

The findings of the present feasibility study have implications for policy and service development. The differences in the rates of child psychiatric disorders between the three main school types highlight the importance of providing flexible interventions and services for different educational institutions, in particular in areas of socioeconomic deprivation. There is 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 complex disorders to the sparse specialist services (Tareen et al, 2009).

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