Prevalence of mental health problems in children and adolescents from the outskirts of Sao Paulo City: treatment needs and service capacity evaluation

Prevalência de problemas de saúde mental em crianças e adolescentes da Região Metropolitana de São Paulo: necessidade de tratamento e capacidade de atendimento

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Resumo

Objetivo: Estimar a prevalência de problemas de saúde mental em crianças e adolescentes com e sem prejuízo funcional global em comunidade urbana de baixa renda; estimar a capacidade de assistência da rede pública de serviços do município; e relacionar a capacidade de assistência à necessidade de tratamento em saúde mental da infância/adolescência. Método: Estudo transversal. Amostra probabilística de conglomerados incluindo todos os domicílios elegíveis (bairro de baixa renda, Embu-SP). Participantes: 479 crianças/adolescentes (6-17 anos; perda amostral: 18,8%). Medidas: 1) Problemas de saúde mental em crianças e adolescentes em nível clínico pela escala total de problemas da Child Behavior-Checklist e/ou Youth Self-Report; 2) Prejuízo funcional global: escore total > 15,5 na Brief Impairment Scale; 3) Capacidade de assistência: total de casos atendidos anualmente por psicólogos/psiquiatras nos setores de saúde, educação, justiça e cidadania/assistência social. Resultados: Prevalência de problemas de saúde mental em crianças e adolescentes: 24,6% (20,7-28,5) desconsiderando prejuízo funcional global; 7,3% (5,0-9,6) com prejuízo funcional global (casos que necessitam tratamento). A capacidade anual de assistência dos casos com prejuízo funcional global é de 14,0% da demanda encontrada, sendo necessários cerca de sete anos para que todos possam ser tratados. Conclusões: Problemas de saúde mental em crianças e adolescentes são frequentes na comunidade estudada e a infra-estrutura atual da rede pública de serviços do município não está preparada para atender em tempo hábil os casos que necessitam tratamento.

Descritores: Prevalência; Criança; Adolescente; Saúde mental; Serviços de saúde mental

Abstract

Objective: To estimate the prevalence of mental health problems in children and adolescents, with or without considering global impairment, within a low-income urban community; to estimate the public service delivery capacity in terms of mental healthcare; and to determine the relationship between delivery capacity and treatment demand. Method: Cross-sectional study. Probabilistic sample of clusters including all eligible households (low-income community - Embu, Southeastern Brazil). Participants: 479 children and adolescents (aged 6-17 years; attrition rate: 18.8%). Measurement: 1) Clinical mental health problems in children and adolescents using the Child Behavior Checklist and/or Youth Self-Report total problem scales; 2) Global impairment: Positive score in the Brief Impairment Scale (total score > 15.5); 3) Service capacity: total number of cases seen annually by psychologists/psychiatrists in the health, education, juvenile justice, and child welfare sectors. Results: Prevalence of mental health problems in children and adolescents: 24.6% (20.7-28.5) without considering global impairment; 7.3% (5.0-9.6) with global impairment (cases in need of treatment). Conclusions: Mental health problems in children and adolescents are frequent in the studied community, and the current structure of the community’s public service system is not prepared to treat impaired cases in an adequate timeframe.

Descriptors: Prevalence; Child; Adolescent; Mental health; Mental health services

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Introduction

Epidemiological studies are of great value for determining the magnitude of mental health problems in childhood and adolescence in a given region, for planning public policies and care service organization, and for establishing prevention and treatment programs.1

Data on the prevalence of mental health problems in childhood and adolescence in developing countries are scarce. A recent review of the literature identified only 10 epidemiological studies on the subject in Latin America and the Caribbean between 1980 and 1999.2 This review, which examined probabilistic samples of children and adolescents from six countries (Brazil, Chile, Colombia, Guatemala, Mexico and Puerto Rico), reported prevalence rates of mental health problems ranging from 15% to 21%. The insufficient number of studies may, to some extent, reflect the complexities involved in assessing mental health in childhood. One challenge is the need to rely on multiple informants, usually parent and child, sometimes teachers, to generate useful information about the children’s behaviors. Since cases identified by administering standardized instruments to parents do not always coincide with those identified when based on information obtained from the adolescents themselves (nearly 23% agreement3), researchers have argued for the importance of combining both sources of information as an attempt to more accurately estimate prevalence rates.4

A second challenge faced by child psychiatric epidemiology is the definition and measurement of impairment in children.5-7 It is widely known that “impairment in one or more important areas of functioning” is required to define a mental disorder.8 From a pragmatic perspective, cases with impairment are defined as children more obviously and currently in need of treatment. Childhood impairment is defined as a lack of adaptive functioning for that child’s developmental stage, within each specific cultural context.9 Impairment should be specifically evaluated (in association with a given disorder). However, in many instances the assessment of child mental health is not focused on specific disorders but rather on the overall symptom level. In these circumstances, it is still important to gather information about the child’s level of impairment. The overall functioning of the individual, or global impairment, can be assessed regardless of the presence of a psychiatric disorder. Evaluating global impairment may be the key to identify children and adolescents in need of mental health treatment, as the presence of impairment may be a better predictor of mental health service use than the presence of psychiatric symptoms.10 Therefore, when determining the distribution of mental health problems in a child population, it is important to go beyond identifying children with clinically significant symptoms. Of particular public health relevance is to identify children who are impaired assuming that those would be most in need of mental health services.

The identification of child mental health demand should be followed by the provision of mental health services for these cases. Care provided to children and adolescents with mental health needs is seldom restricted to specialized services. A large proportion of child mental health need and care is concentrated outside the health sector, occurring in sectors such as education, juvenile justice, and/or child welfare.2,11 Little information is available on the services provided to children and adolescents with mental health problems in Brazil, as well as in Latin America and the Caribbean.2 Therefore, identifying with adequate criteria, the proportion of children and adolescents in need of mental health treatment in a certain area, and relating this demand to this area’s child mental health delivery capacity are original and important efforts. The aims of the present study are to 1) estimate the prevalence of mental health problems, considering both those with and without global impairment, among children and adolescents from Embu, a low-income urban community from the outskirts of Sao Paulo, Southeastern Brazil; 2) estimate the annual public service delivery capacity to provide care for children and adolescents in need of treatment (with global impairment); and 3) determine the relationship between public service delivery capacity and demand for treatment.

Method

1. Study design

Cross-sectional study.

2. Subjects

The present study used a subsample of the Brazilian Studies of Abuse in the Family Environments (BrazilSAFE) study. This cross-sectional survey was part of the World Studies of Abuse in the Family Environments (WorldSAFE) multicenter project, which included surveys conducted in five countries (Brazil, Chile, Egypt, India, and Philippines).12 This subsample included 479 children and adolescents aged 6-17 years, living in the municipality of Embu, Southeastern Brazil. Children whose mothers showed severe mental deficiency, psychotic condition, or severe physical disease were prevented from answering the interview (four cases). Households in which the mother-child/adolescent pair was not established were also excluded (another four cases in which mothers moved or died during data collection).

3. Setting

The present study was conducted in a low-income neighborhood of the municipality of Embu, in the metropolitan area of Sao Paulo city. Embu has a population of 232,165 inhabitants, of which 42% under 20 years old, and a municipal Human Development Index of 0.77, compared to 0.81 for the state of Sao Paulo as a whole. It is considered as one of the country’s most violent municipalities, with a homicide rate of 100.8 cases per 100,000 in 2002, much higher than the rate for the City of Sao Paulo (38.9) and for the region to which Embu belongs (55.2). Only 4.4% of heads of households earn more than 10 monthly minimum wages, a lower rate than that of the State of Sao Paulo (14.3%) and surrounding region (17.0%).13

4. Sampling and procedures

The Brazilian Census Bureau (Instituto Brasileiro de Geografia e Estatística – IBGE) identified 12 census sectors corresponding to the selected neighborhood. These sectors were divided into clusters (geographical areas of maximal internal homogeneity and similar size) of approximately 50 households each. IBGE randomly selected 24 clusters (about 70% of the total area); all households in these sectors were visited for the identification of those eligible to participate in the study. Lists with all household residents were elaborated (another four cases in which mothers moved or died during data collection).

Households in which the mother-child/adolescent pair was not established were also excluded (another four cases in which mothers moved or died during data collection).
mother and the index child were identified, interviewers would invite families to participate in the study and, if they had given their informed consent, families were enrolled in the study. These recruitment and data collection procedures took place during 11 consecutive months and included 813 families (attrition rate = 17.6%). All eligible households were visited at least thrice at different time periods and on different days for the scheduling of individual interviews with mothers and adolescents (11-17 years). Refusal to participate and moving away, were the most frequent reasons for an eligible family not to be included in the study. The sample included 328 children aged below 6 years and 485 children/adolescents aged 6-17 years. The subsample used in the present study (N = 479) included all subjects aged 6-17 years with complete data (six cases were excluded due to incomplete mental health data; attrition rate for families with children/adolescents aged 6-17 years = 18.8%).

Psychologists, social workers, or anthropologists previously trained for administering the instruments and under the supervision of a field supervisor carried out interviews at the neighborhood’s Primary Care Unit. Mothers answered the Child Behavior Checklist, the Brief Impairment Scale and the Household Economic Classification Questionnaire (N = 479). Adolescents aged 11-17 years answered the Youth Self-Report (N = 249).

At the end of the interview, subjects were referred to specialized services in the area when necessary. All mothers gave their informed consent, following the recommendations of the Universidade Federal de São Paulo’s Research Ethics Committee.

5. Instruments

For the detection of mental health problems in children and adolescents, we used the Brazilian versions of the Child Behavior Checklist (CBCL) and of the Youth Self-Report (YSR). The CBCL is based on parental information (about children/adolescents aged 6-18 years) and the YSR is based on youth self-report (11-18 years). These instruments provide a behavioral profile of the child or adolescent based on three scales: total problems, internalizing problems (anxiety/depression), and externalizing problems (aggressive and delinquent behaviors). Cut-off points (T scores) classify children/adolescents into three categories: clinical (>63), borderline (>60 and <63), and non-clinical (<60).

Preliminary validation data for the Brazilian version of the CBCL (1991 version) showed 80.4% sensitivity when administered to mothers with low educational level by a trained lay interviewer. High sensitivity (78.7%) was also verified in a more recent study comparing the results of the CBCL to results of the Brazilian version of the Schedule for Affective Disorders and Schizophrenia for School Aged Children: Present and Lifetime Version (K-SADS-PL). In order to evaluate the global impairment we used the Brazilian versions of instrument. The Brief Impairment Scale (BIS) is an instrument administered to parents to measure global impairment in children and adolescents. It consists of 23 items that include three domains of functioning: interpersonal relationship, school/work functioning, and self-fulfillment. These items include a diversity of questions, e.g., “Has it been difficult for him/her to get along well with his/her parents, siblings, or other relatives?”; “How well has he/she been doing in his/her school work?”; “Compared to other kids of the same age, how neat is his/her appearance most of the time?”. Scores higher than 15.5 in the total BIS scale were considered as positive for global functional impairment. The cutoff point for the Brazilian version was established by comparing the distribution of scores obtained in Embu with those of Puerto Rican samples.*

The socioeconomic level of the families was determined based on the Household Economic Classification Questionnaire, developed by the Brazilian Association of Market Research Companies (Associação Brasileira de Empresas de Pesquisa - ABEP), which evaluates household purchase power. The capacity of the Embu public service system to provide mental health treatment to children and adolescents aged 6-17 was defined as the estimate number of patients who received treatment in 2003 by psychologists/psychiatrists in the health, education, juvenile justice, and child welfare sectors. The number of patients treated was determined based on information provided by service coordinators and/or key staff members from a comprehensive list of Embru’s child-related services. The municipality’s mental health office informed and facilitated the process of establishing contact with the services.

6. Clinical outcomes of interest

The presence of mental health problems in children and adolescents was defined based on the clinical category obtained using the CBCL and/or YSR total problems scales. Need for specialized treatment was established for cases simultaneously showing mental health problems and global impairment.

The results indicated that 17% of the sample had clinical, 38% had borderline, and 45% had a non-clinical status. In order to verify the capacity of the Embu public service system to provide mental health treatment to children and adolescents aged 6-17, the prevalence of children/adolescents in the Embu sample was compared with the prevalence of Puerto Rican samples. The results showed that the prevalence of children/adolescents in the Embu sample was lower than that of Puerto Rican samples.*

In order to evaluate the global impairment we used the Brazilian versions of instrument. The Brief Impairment Scale (BIS) is an instrument administered to parents to measure global impairment in children and adolescents. It consists of 23 items that include three domains of functioning: interpersonal relationship, school/work functioning, and self-fulfillment. These items include a diversity of questions, e.g., “Has it been difficult for him/her to get along well with his/her parents, siblings, or other relatives?”; “How well has he/she been doing in his/her school work?”; “Compared to other kids of the same age, how neat is his/her appearance most of the time?”. Scores higher than 15.5 in the total BIS scale were considered as positive for global functional impairment. The cutoff point for the Brazilian version was established by comparing the distribution of scores obtained in Embu with those of Puerto Rican samples.*

The sample (N = 479) comprised 233 boys (48.6%) and 246 girls (51.4%); 230 subjects (48.0%) were children (6-10 years) and 249 (52.0%) were adolescents (11-17 years); mean age was 11 years (± SD = 3.4). Most mothers aged 31-40 years (mean age ± SD = 37 ± 6.5 years) and had low educational level (63% had not completed elementary education). Of note, over 20% of children/adolescents lived in households in which the father was absent during the last 6 months. Regarding socioeconomic status, 77.6% of the sample consisted of families of low socioeconomic level (Table 1).

<table>
<thead>
<tr>
<th>Table 1 – Sociodemographic characteristics of the sample (n = 479)</th>
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<tbody>
<tr>
<td><strong>Sociodemographic characteristics</strong></td>
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<tr>
<td><strong>Child/adolescent’s gender</strong></td>
</tr>
<tr>
<td>Male</td>
</tr>
<tr>
<td>Female</td>
</tr>
<tr>
<td><strong>Child/adolescent’s age (years)</strong></td>
</tr>
<tr>
<td>0-10</td>
</tr>
<tr>
<td>11-17</td>
</tr>
<tr>
<td><strong>Mother’s age</strong></td>
</tr>
<tr>
<td>20-30</td>
</tr>
<tr>
<td>31-40</td>
</tr>
<tr>
<td>41-50</td>
</tr>
<tr>
<td><strong>Mother’s schooling (completed grades)</strong></td>
</tr>
<tr>
<td>Some elementary education</td>
</tr>
<tr>
<td>Full elementary school</td>
</tr>
<tr>
<td><strong>Presence of father in the household (last 6 months)</strong></td>
</tr>
<tr>
<td>Yes</td>
</tr>
<tr>
<td>No</td>
</tr>
<tr>
<td><strong>Socioeconomic level</strong></td>
</tr>
<tr>
<td>Middle class (A+B)</td>
</tr>
<tr>
<td>Lower class (Cd+D+E)</td>
</tr>
</tbody>
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* Cristiane S Duarte, personal communication.

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The prevalence of mental health problems in the sample was 24.6% (20.7-28.5), when combining the information of parents and adolescents and independently of global impairment. Mental health need (mental health problems with global impairment), was identified in 7.3% (5.0-9.6) of the sample (Table 2).

### Table 2 - Prevalence of mental health problems in children and adolescents, with and without global impairment (n = 479)

<table>
<thead>
<tr>
<th>Mental health problems</th>
<th>Prevalence % (95%CI)</th>
<th>Children and adolescents in the sample (n)</th>
<th>Estimated number of children and adolescents in Embu (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regardless of global impairment</td>
<td>24.6 (20.7-28.5)</td>
<td>118</td>
<td>12,904</td>
</tr>
<tr>
<td>With global impairment</td>
<td>7.3 (5.0-9.6)</td>
<td>35</td>
<td>3,830</td>
</tr>
</tbody>
</table>

### 2. Delivery capacity of the public service system of the municipality of Embu

In Embu's public service system, we identified 12 facilities providing mental health treatment for children and adolescents aged 6 and 17 years. These facilities belonged to different service sectors, classified as health, education, juvenile justice, and child welfare. The facilities run by these four sectors include one General Hospital and seven Primary Care Units; one Special School; one Woman's Police Station; and two youth assistance services named Centro de Referência da Juventude (Youth Reference Center) and Espaço Jovem (Youth Center). In these 12 facilities, 21 mental health professionals (15 psychologists and 6 psychiatrists) work on a daily basis. Of note, none of these professionals exclusively treat children and/or adolescents, dedicating only a small part of their time to these age groups. The types of treatment available are individual and group psychotherapy, psychological support, counseling, and pharmacological assistance. It is estimated that, as a whole, these facilities provide care to approximately 537 cases in the 6-17 years age group per year. It should also be noted that, in the great majority of services, there were no organized records of the treatments provided, including treatment duration and number of visits.

### 3. Relationship between delivery capacity and treatment demand

The municipality of Embu has 52,457 children and adolescents aged 6-17 years. Based on the prevalence rates obtained in the present sample, we estimate that, in the entire municipality, there are approximately 12,904 children and adolescents with mental health problems, 3,830 of which would require treatment due to global impairment (Table 2).

Our survey indicates a large disparity between the estimated demand for treatment (3,830 cases) and the system's estimated current delivery capacity (537 cases treated per year). According to these data, only 14.0% (N = 537) of the 3,830 children with mental health problems and global impairment in the entire municipality could receive treatment during a one-year period. Therefore, roughly seven years would be required for all impaired cases to be treated by these services, including follow-up visits.

### Discussion

This study used a representative sample of children and adolescents aged 6-17 years from a low-income neighborhood of the municipality of Embu. The fact that the sample was derived from the community rather than from schools enabled the inclusion of youths that had dropped out the school system, which is especially relevant in the case of subjects older than 14 years, the upper age limit for mandatory school enrollment in Brazil. In our sample, this would have led to a further 8% loss. We also highlight the fact that the present study was conducted in a low-income area, and that review studies indicate that poverty is associated with multiple risk factors for mental health problems in childhood and adolescence.

For this reason, major cities' suburbs, which in Brazil are predominantly low-income areas, may be considered as priority settings for carrying out evaluation studies and early intervention measures, aimed at promoting the mental health of children and adolescents at risk.

1. **Prevalence of mental health problems in childhood and adolescence**

   The prevalence of mental health problems regardless of global impairment in our sample was 24.6%. This rate is compatible with the mean of the prevalence (22.4%) found in 12 countries that also used CBCL to identify mental health problems in children and adolescents.

   After a strict review of the literature on surveys carried out in Latin America and the Caribbean between 1980 and 2005 we identified nine studies with appropriate methodology, based on random population-based samples, using standardized instruments for the measurement of global mental health problems in childhood and adolescence, and showing reported losses under 40%. Five of these studies used symptom scales (Table 3), two used psychiatric diagnostic instruments (Table 4), and two studies used both types of instrument (Tables 3 and 4). Only two studies used global impairment measures (Table 4).

   Prevalence variation rates observed in Table 3 are possible due mainly to methodological differences, including subjects age, informant type (and number), instruments, and sampling strategy. The seven studies' rates range from 10.3% to 37.8% (table 3). Most of these results are similar to our equivalent subsamples, considering the prevalence rates and the Standard Deviations (Table 3, last column). A higher prevalence rate was found in our subsample than that reported by Benvengnu et al. One possible reason for the lower level of mental health problems in the city of Pelotas, could be a better socioeconomic condition of the State of Rio Grande do Sul when compared to the outskirts of Sao Paulo City. At same time, Bird et al.'s reported rate is very high when compared to all other studies. Such a discrepancy has already been acknowledged in a previous review about prevalence studies using CBCL around the world.

   Three studies reported prevalence rates using diagnostic instruments and did not consider global impairment (Table 4). As expected, all these three studies found lower rates than our correspondent subsamples using the CBCL and/or YSR (table 4, last column). Finally, we would like to comment on two studies that evaluated the prevalence of psychiatric disorders and also considered global impairment (Table 4). Both studies were conducted in Puerto Rico and were based on national samples, used a version of the DISC (to evaluate mental health) and of the Children's Global Assessment Scale (to evaluate global impairment). An important difference between both studies is that the Bird et al.'s study was based on DSM-III criteria which did not require impairment for the
When global impairment is considered, the prevalence rate obtained by Bird et al.\(^{22}\) (17.9%) was much higher than those found in the present study, in the study by Canino et al.\(^{10}\), and in recent surveys conducted in the United States (5.0%-9.0%).\(^1\) On the other hand, Canino et al.\(^{10}\) used a more recent version of the DISC (DISC-IV) in which specific impairment criteria are required for each disorder to be defined. These authors\(^{10}\) define rates of disorders using a measure of global impairment in addition to the disorder-specific impairment. In our correspondent subsamples, we found a very similar rate (Table 4, last column) than that reported by Canino et al.\(^{10}\) This suggest that global impairment is a good marker of severity and may be an important indicator of treatment need.\(^9,10\)

2. Relationship between delivery capacity and treatment demand

Data obtained in the present study indicate that the current structure of the public service system in Embu is not prepared to provide care, in an adequate timeframe, to its children and adolescents with mental health needs as it currently fulfills only 14% of the estimated need during a one-year period. It should be emphasized that children and adolescents with mental health problems and global impairment are the most affected group, since, in addition to the psychiatric symptoms, they show impaired social relationships, poor academic achievement, and/or poor performance in sports and leisure activities. Due to the chronic and steadily debilitating nature of the impairment, it is important to train a team of mental health professionals specifically to treat children and adolescents. This becomes especially important as 1) the treatment needs of children may differ from that of adults and 2) there is currently no treatment professionals in Embu exclusively devoted to the needs of this population.

In addition to the insufficient availability of specialized professionals and services, there is evidence in the international literature that treatment for this population is further hindered by difficult access to services, inaccurate identification of ca-
ses and inappropriate utilization of services, parental resistance to acknowledging their child’s problems, as well as a host of other factors. However, the present study did not investigate care provided through private health plans. As such, a number of children may be privately treated or through health maintenance organizations, which would reduce, at least partially, the discrepancy between delivery capacity and treatment demand.

In Latin America and the Caribbean, epidemiological studies on the use of mental health services by children and adolescents are a recent phenomenon. The two studies on the subject conducted in the last 10 years show that only 25-50% of children and adolescents with psychiatric disorders and/or global impairment receive specialized treatment in a one-year period. These two studies, both conducted in Puerto Rico, suggest a delivery capacity greater than that seen in Embu.

Finally, we would like to suggest greater investment to improve the mental healthcare quality records in public services. More detailed data, enabling, among other things, the discrimination between new and returning cases and determination of the type and duration of treatment, may serve as a basis for the planning of interventions and preventive measures in the public health field.

3. Study limitations

The present study shows certain limitations regarding the generalization of our results and the range of the instruments used for the identification of children and adolescents in need of mental health treatment. Although our sample did not include residents of the entire municipality, it seems reasonable to assume that the results of the present study may be generalized to adjacent neighborhoods, since these are very similar in terms of their sociodemographic conditions. Nevertheless, further studies are required to warrant a wider generalization of the present results to other similar areas in the country.

The questionnaires used to evaluate mental health in our sample are those most used internationally in population-based studies, and are widely recommended for transcultural comparisons. However, it is important to note that these instruments identify cases with high symptom load without the establishment of a psychiatric diagnosis.

Conclusions

The prevalence of mental health problems in childhood and adolescence is high in the community studied, as well as in other low-income areas of Latin America and the Caribbean. Although the number of prevalence studies on the subject has increased in recent years, surveys with representative samples and adequate instruments and methodology are still scarce and necessary in this region.

The current infrastructure of Embu’s public service system is not prepared to treat impaired cases in an adequate timeframe. Although this scenario is likely representative of the suburbs of any other large city in Brazil, it is nevertheless strongly recommended to conduct further studies in order to verify such an assumption.

Acknowledgments

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References


