

# Serious Emotional and Behavioral Problems and the Use of Mental Health Services in a Sample of Brazilian Elementary School Students

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### Abstract

**Background:** serious emotional and behavioral problems in children/adolescents can be identified by informants through screening instruments, which can increase their chances of receiving care in mental health services. **Objectives:** verify and compare serious emotional and behavioral problems in elementary school students depending on school type and correlate these problems with the use of mental health services. **Method:** observational cross-sectional study with a convenience sample composed of 357 children and adolescents between 6 and 12 years old without mental health complaints, from public and private schools. **Instruments:** Child Behavior Checklist for Ages 6–18 (CBCL/6–18) and questionnaire for use of mental health services. To identify serious emotional and behavioral problems, critical items from the behavioral problem syndrome scales and scales guided by the CBCL/6–18 DSM were used. **Results:** different types of serious emotional and behavioral problems were identified using critical items, such as physically attacking other people (16.5%), saying they are going to kill themselves (5.6%), seeing things that don't exist (3, 9%), setting things on fire (7.9%) and hearing sounds or voices that don't exist (2.8%). Bivariate analysis showed that, despite the frequency of these serious emotional and behavioral problems, the use of mental health services was extremely low (0.84%). **Conclusion:** the critical items of the CBCL/6–18 help to screen for serious emotional and behavioral difficulties that can negatively impact the mental health of children/adolescents. The lack of parental recognition of serious mental health problems still demands theoretical and empirical deepening.

*Keywords:* child behavior, children, mental health services, school

## PROBLEMAS COMPORTAMENTAIS GRAVES E USO DE SERVIÇOS DE SAÚDE MENTAL EM CRIANÇAS BRASILEIRAS

### Resumo

**Introdução:** problemas emocionais e comportamentais graves de crianças/adolescentes podem ser identificados por informantes através de instrumentos de rastreio, podendo aumentar suas chances de atendimento em serviços de saúde mental. **Objetivos:** verificar e comparar problemas emocionais e comportamentais graves em alunos do ensino fundamental em função do tipo escolar e correlacionar esses problemas com a utilização de serviços de saúde mental. **Método:** estudo transversal observacional com amostra de conveniência composta por 357 crianças e adolescentes entre 6 e 12 anos sem queixas de saúde mental, provenientes de escolas públicas e privadas. **Instrumentos:** Child Behavior Checklist for Ages 6–18 (CBCL/6–18) e questionário para uso de serviços de saúde mental. Para identificar os problemas emocionais e comportamentais graves foram utilizados os itens críticos das escalas de síndromes de problemas de comportamento e das escalas orientadas pelo DSM do CBCL/6–18. **Resultados:** foram identificados diferentes tipos de problemas emocionais e comportamentais graves com uso dos itens críticos, como agredir fisicamente outras pessoas (16,5%), falar que vai se matar (5,6%), ver coisas que não existem (3,9%), pôr fogo nas coisas (7,9%) e ouvir sons ou vozes que não existem (2,8%). A análise bivariada mostrou que, apesar da frequência desses graves problemas emocionais e comportamentais, o uso de serviços de saúde mental foi extremamente baixo (0,84%). **Conclusão:** os itens críticos do CBCL/6–18 auxiliam no rastreio de dificuldades emocionais e comportamentais graves que podem impactar negativamente a saúde mental de crianças/adolescentes. A falta de reconhecimento parental de problemas graves de saúde mental ainda demanda aprofundamento teórico e empírico.

*Palavras-chave:* comportamento infantil, crianças, serviços de saúde mental, escola

## PROBLEMAS CONDUCTUALES GRAVES Y USO DE SERVICIOS DE SALUD MENTAL EN NIÑOS BRASILEÑOS

### Resumen

**Introducción:** problemas emocionales y conductuales graves en niños/adolescentes pueden ser identificados por informantes con instrumentos de tamizaje, lo que puede aumentar posibilidades de recibir atención en servicios de salud mental. **Objetivos:** evaluar y comparar problemas emocionales y conductuales

graves en estudiantes según el tipo de escuela y correlacionar estos problemas con uso de servicios de salud mental. **Método:** estudio observacional transversal con muestra por conveniencia de 357 niños y adolescentes entre 6 y 12 años sin problemas de salud mental, de escuelas públicas y privadas. *Instrumentos:* Lista de Comportamiento Infantil de 6 a 18 años (CBCL/6-18) y cuestionario de uso de servicios de salud mental. Para identificar problemas emocionales y conductuales graves se utilizaron ítems críticos de las escalas de síndrome de problemas de conducta y de escalas guiadas por el DSM del CBCL/6-18. **Resultados:** se identificaron diferentes tipos de problemas emocionales y comportamentales graves mediante ítems críticos, como agredir físicamente a otras personas (16,5%), decir que se van a suicidar (5,6%), ver cosas que no existen (3,9%), prender fuego a cosas (7,9%) y escuchar sonidos o voces que no existen (2,8%). El análisis mostró que, a pesar de la frecuencia de graves problemas emocionales y conductuales, el uso de servicios de salud mental fue extremadamente bajo (0,84%). **Conclusión:** los ítems críticos del CBCL/6-18 ayudan a detectar dificultades emocionales y conductuales graves que pueden impactar negativamente la salud mental de niños/adolescentes. La falta de reconocimiento por parte de los padres de problemas graves de salud mental todavía exige una profundización teórica y empírica.

*Palabras-clave:* conducta infantil, niños, servicios de salud mental, cbcl/6-18

A systematic review of Mental Health Problems (MHP) estimates a worldwide prevalence of 13.4% among children and adolescents have MHP involving neurodevelopmental and psychiatric disorders (Fatori et al., 2018; Paula et al., 2010; Polanczyk et al., 2015). Previous studies have shown the need for monitoring MHP in childhood and adolescence (Alemán-Díaz et al., 2018; Guerra & Duryea, 2017). A German longitudinal study analyzed the prevalence, course, and persistence of MHP over ten years from childhood into adolescence based on a sample of 230 children. The study revealed long-term persistence rates of more than 50% for internalizing, externalizing, and total MHP, and approximately 24% of the 230 children in the sample had borderline clinically or clinically relevant MHP, with no statistically significant difference between boys and girls (Supke et al., 2021). The increase in mental health problems from preschool to school age has been shown in several studies, including in Brazil (Matijasevich et al., 2014; Membride, 2016; O'Reilly et al., 2018).

Approximately 75% of the MHP presented before the age of 25 and 50% before the age of 15 are emotional and behavioral problems (Kim-Cohen et al., 2003; O'Brien et al., 2016), but they are frequently not noticed by parents or by the pediatricians that monitor child development (Gleason et al., 2016). Although these signs can be apparent during childhood, parents do not always spontaneously identify MHP in the family environment (Frantz et al., 2019). Therefore, the reasons for the lack of report/referral of emotional and behavioral problems by parents deserve more significant investigation. In low-and-middle-income countries (LMICs), where MHP have gone mainly unrecognized, new identification strategies, early interventions, and appropriate services for child mental health problems are needed (Ma et al., 2021).

Achenbach and Edelbrock (Achenbach & Edelbrock, 1978) were two pioneering researchers behind the scientific effort to define emotional and behavioral problems that may be indicative of MHP in childhood. They developed a model classifying behavior into two broad categories: a) *internalizing* behavioral problems, composed of signs and symptoms predominantly affecting the individual itself, such as anxiety, withdrawal, somatic-emotional complaints, and depression, among others; and b) *externalizing* behavioral problems, which predominantly affect other people, such as hetero-aggression, disruptive behavior, rule-breaking, and substance abuse, among others (Achenbach, 2017). There is evidence showing that, regardless of the type of informant (parents or teachers) and the context, internalizing emotional and behavioral problems are more prevalent among girls, and externalizing problems are more prevalent among boys (Paula et al., 2010; The Global Burden of Disease Child and Adolescent Health Collaboration, 2017; van der Sluis, 2017). Externalizing problems are predominantly behavioral, and internalizing problems are predominantly emotional (Achenbach, 2017). In 2009, for example, an Australian study identified a significant number of preventive interventions in which the main targets were children with behavioral problems (mainly conduct, disruptive, and aggressive problems) as opposed to children with emotional problems (depression, anxiety, and withdrawal problems) (Bayer, Hiscock, Scalzo, 2009).

Public mental health policies recommend monitoring childhood mental health by assessing emotional and behavioral problems (Achenbach et al., 2017; The Global Burden of Disease Child and Adolescent Health Collaboration, 2017). One of the most widely used systems for assessing emotional and behavioral problems in childhood is the Achenbach System of Empirically Based Assessment (ASEBA) (Rescorla et al., 2019). The ASEBA is a set of assessment tools extensively used to assess signs of childhood psychopathology in diverse cultural contexts. These instruments can be used by researchers and clinicians in many societies since the ASEBA tools have been translated into over 110 languages, although not all are available in all languages (Achenbach et al., 2017; Rescorla et al., 2019). The ASEBA offers a comprehensive approach to assessing adaptive and maladaptive functioning, and findings with these instruments have already provided a great deal of information about similarities and differences between problems reported in children from many different backgrounds. The ASEBA inventories have excellent sensitivity, specificity, and concurrent external validity levels compared to other gold-standard tools for evaluating the MHP of children and adolescents (Achenbach et al., 2017).

In different countries, one of the primary scales of the ASEBA inventories, the Child Behavior Checklist for Ages 6–18 (CBCL/6–18), has been used to assess emotional and behavioral problems, and it is very useful in identifying children who have emotional dysregulation (Rescorla et al., 2007; Rescorla et al., 2019; Rescorla et al., 2020). Several Brazilian studies have used the CBCL/6–18 and have shown associations between emotional/behavioral problems among children/adolescents with paid work (Bordin et al., 2013), child abuse (Bordin et al., 2009), and maternal mental health problems (Curto et al., 2011), among other environmental issues. The CBCL/6–18 is frequently used in studies in Brazil to identify signs of ADHD (Marino et al., 2019; Siqueira et al., 2019).

Critical items in the Achenbach System of Empirically Based Assessment (ASEBA) refer to specific items or questions within the assessment instruments (such as the Child Behavior Checklist, Teacher's Report Form, and Youth Self-Report) that are considered particularly important or indicative of certain behaviors or problems. These critical items are often identified based on research and clinical experience, highlighting key areas of concern. These items are considered particularly important because they indicate potentially serious, dangerous behaviors or require urgent attention from mental health professionals (<https://aseba.org/aseba-network>; Fernández-Pinto et al., 2015). A qualitative analysis of these critical items could highlight a particular clinical concern for which, at a minimum, preventive interventions and mental health monitoring would be recommended, as described in previous studies (Fernández-Pinto et al., 2015; Morris et al., 2011; Tsang et al., 2017).

Specific behavioral problems are not related to one or more particular disorders but are manifestations that can occur in several different mental health problems (Cianchetti, 2020; Goodkind et al., 2015). In recent years, several studies have been published using the critical items of the ASEBA instrument scales for children and adolescents to assess indicators of serious emotional and behavioral problems in children with and without neurodevelopmental disorders

(Soedjana et al., 2022; Tsang et al., 2016; Tsang et al., 2017). The study of Soedjana et al. (2022) evaluated psychosocial problems in an Indonesian cleft center in school-age patients after one or more surgical interventions. The study sample comprised 104 parents (93.3% were mothers). The main results showed that 15.4% of the sample scored positively for critical items (for instance, runs away from home, sees and hears things that are not there, sets fires, attacks people physically, plays with own sex parts in public) (Soedjana et al., 2022). The authors cautioned that the items reported alone cannot be interpreted as specific psychosocial/psychological diagnoses; however, they warranted further and more elaborate clinical evaluation by mental health professionals.

A previous study in Brazil found severe behavioral problems in children exposed to substance use in their families (Vilela et al., 2019). The main result of the cross-sectional study conducted among 101 children aged 6–11 years using the CBCL was a high prevalence of problems (26.7% with clinical scores for internalizing problems, 40.6% for externalizing problems, and 40.6% for total problems). However, in this previous study, the specific scores of the critical items were not evaluated.

Other research in Brazil about mental health in children and adolescents has presented significant results using samples from different regions of the country and including long-term follow-up through cohort studies (Bach et al., 2019; La Maison et al., 2018). The data consistently warn that greater exposure to environmental risk factors, which are more frequent in developing countries, makes this population more vulnerable (Paula et al., 2018). It is essential to raise parents' awareness of the need to give proper attention to their children when they present any indicator of a mental health problem, even occasionally or nonspecific (Rohde, 2011). Approximately half of children and young people with MHP do not receive treatment, even in developed countries (Green et al., 2013), and these disparities are more striking in low- and middle-income countries (Semrau et al., 2016). Brazilian studies have shown low access rates to mental health treatment (Fatori et al., 2018; Fatori et al., 2019; Paula et al., 2014; Paula et al., 2018). In a Brazilian study with 825 children aged 6 to 11 years, only 1.1% of the sample used psychiatric mental health services, and 7.9% used psychological mental health services (Fatori et al., 2018).

Public health and education policies recommend periodic monitoring of emotional and behavioral problems in childhood as measures to prevent MHP (Weare & Nind, 2011). However, in developing countries, implementing public policies in this area remains problematic (Erskine et al., 2017). The Brazilian investment of public resources in child mental health services is insufficient (Scivoletto et al., 2020). In addition to low financial investments, the evidence from Brazil shows that there is a need to reformulate public policies aimed at the child population, including better monitoring of MHP in primary health care (Fatori et al., 2018), improving the mental health services provided by the Psychosocial Care Network /Rede de Atenção Psicossocial (Meirelles & Kantorski, 2021), increasing the number of professionals specializing in mental health, and the training of non-specialists to improve the referral of cases (Scivoletto et al., 2020).

Schools provide an excellent environment for screening mental health problems in childhood because not only do they allow access to a large part of the child population, but they also provide easy access to parents/and caregivers and teachers as informants. We hypothesized that there would be a significant number of children with severe emotional and behavioral problems who were not using mental health services. The study aimed to assess and compare the levels of severe emotional and behavioral problems in elementary school students according to the type of school and to correlate these problems with the use of mental health services.

## Method

### Study Design and Sample

This cross-sectional observational study uses a convenience sample comprising parents or primary caregivers of 357 students (173 were male, and 184 were female) enrolled in Elementary Education at three schools in the city of São Paulo (173 from two public and 184 from one private school). Parents/guardians were invited to participate in 2019, with the inclusion criterion being that the parent/guardian spent at least 6 hours a day with the child. The invitation was made at meetings of parents of children between the 1st and 5th grades (children aged between 6 and 10 years old). The private school in São Paulo city had eight elementary school classrooms (each with 20 to 25 students). After the invitation, 181 parents agreed to participate in the study. Parents of students from two public schools were recruited from a municipal education network in a city in the metropolitan region of São Paulo with 13 elementary school classrooms between the 1st and 5th grades (each with 30 to 32 students). After the invitation, 173 accepted to participate in the study. Children with special educational needs (e.g., intellectual disability, autism spectrum disorder), according to the school records, were not included in the study.

The socioeconomic status (SES) measure used was the Brazilian Association of Research Companies (ABEP) questionnaire for family economic classification (ABEP, 2010). Table 1 summarizes the SES classifications (20.16% with higher socioeconomic level (Class A), 47.05% with middle-high level (Class B), and 32.76% with middle-low, low, and extremely low levels (Classes C, D, and E)). All the study procedures followed the Code of Ethics of the World Medical Association (Declaration of Helsinki). They were approved by the Mackenzie Presbyterian University Research Ethics Committee (process number CEP/UPM 1374/08/2011 and CAAE: 0069.0.272.000-11). The data were collected in 2019, before the COVID-19 pandemic. After data collection, in return for their participation in the study, the parents received a lecture on how to help them identify emotional and behavioral problems in their children, as well as on parenting practices and promoting children's mental health. After data collection, the parents of children who were classified in the borderline and clinical range for emotional and behavioral problems, according to the results of CBCL, were duly notified. The referral of these children to seek mental health services was the responsibility of the parents, and they were provided with information on how to do this.

## Instruments

a) The Child Behavior Checklist for ages 6–18 (CBCL/6–18) (Achenbach, 2009; Achenbach et al., 2017). The CBCL/6–18 provides a measure of children’s behavioral and emotional problems. Parents are asked to rate 113 items on a 3-point Likert scale (0 = not true, 1 = somewhat or sometimes true, and 2 = very true or often true) considering the child’s behavior in the previous six months. The CBCL includes eight empirically based scales and six scales based on the Diagnostic and Statistical Manual of Mental Disorders (DSM). The emotional and behavioral problem scales of the CBCL are the empirically based scales (internalizing problems – anxious/depressed, withdrawn/depressed, somatic complaints; externalizing problems – rule-breaking behavior, aggressive behavior), total problems (all items), and the DSM-oriented scales (attention-deficit /hyperactivity problems, oppositional defiant problems, affective problems, anxiety problems, somatic problems and conduct problems). The cutoff points of the T scores for a behavior problem to be considered normal, borderline, or clinical are normal – T score below 65; borderline – T score between 65 and 69; clinical – T score above 70 (Achenbach, 2009; Achenbach et al., 2017). These cutoff points refer to the Brazilian normative standard established by ASEBA (group 3) (Rescorla et al., 2012). The cultural adaptation of the CBCL/6–18 into the Brazilian Portuguese version was conducted by Bordin and colleagues (Bordin et al., 2013). This study used the nine critical items of the CBCL/6–18 from the empirically based syndromes scales and the DSM-oriented scales profile. All these items evaluate severe or serious emotional and behavioral problems. The nine critical CBCL items included were: “runs away from home,” “sees things that are not there,” “sets fires,” “plays with own sex parts in public,” “talks about suicide,” “deliberately harms self or attempts suicide,” “physically attacks people,” “hears sounds or voices that are not there,” and “uses drugs” (Achenbach, 2009; Achenbach et al., 2017). We recorded the critical items to 0 if the items were answered as “not true,” and the items answered as “somewhat or sometimes true” and “very true or often true” were recoded as 1.

b) A questionnaire on the use of mental health services: this brief questionnaire was based on questions developed from a previous study (Paula et al., 2014), which also aimed to assess the use of services by the participating children in terms of specialist care by a neurologist, psychiatrist, and psychologist, concerning the last six months.

c) The Brazilian Economic Classification Criteria (ABEP, 2010). The ABEP questionnaire gathers information on the socio-economic class of the participants. It defines their economic classification according to the Brazilian criteria thresholds from A (highest) to E (lowest).

## Data collection procedures

A meeting scheduled by the administration of the participating schools was held with the parents to present the project during parent meetings. The invitation to participate in the study was made at the parents’ meetings, and data collection was conducted after these meetings with those who agreed to participate. After the meeting, these parents were distributed in classrooms within groups of 25 to complete the data collection instruments individually. The parents



received assistance, if required, from three professionals to complete the CBCL/6–18 inventory, the questionnaire about the use of mental health services, and the Brazilian Economic Classification Criteria questionnaire.

### **Statistical analysis**

A databank using the SPSS program, version 19.0 (Statistical Package for the Social Sciences), organized the collected data. Comparisons of the distributions of responses in the externalizing, internalizing, and total problem scales, as well as for each critical item of the CBCL/6–18 according to the sex of the children, as well as their distribution concerning the use of mental health services were analyzed using bivariate analysis. For the statistical tests, a significance level of 5% was adopted. Values of  $p > 0.05$  and  $\leq 0.10$  were considered significant (Dancey & Reidy, 2019).

### **Results and Discussion**

The study sample comprised parents/primary caregivers of 357 students enrolled in three mainstream schools in São Paulo. Table 1 presents a characterization of the sample.

**Table 1***Sociodemographic characteristics of the sample (n = 357)*

Variables		Index/N (%)
<b>Human Development Index in 2019</b>		
City of public schools		0.786
City of private school		0.845
<b>Children</b>		
Mean Age $\pm$ Standard Deviation		8.35 $\pm$ 1.34
Minimum and maximum age		6–12 years
<b>Gender - n (%)</b>		
Male		172 (48.17%)
Female		185 (51.82%)
<b>Education - n (%)</b>		
1st grade		38 (10.64%)
2nd grade		88 (24.64%)
3rd grade		94 (26.33%)
4th grade		69 (19.32%)
5th grade		68 (19.04%)
<b>Parents / Primary Caregiver</b>		
Age - Mean $\pm$ Standard Deviation		37.34 $\pm$ 6.86
<b>Gender - n (%)</b>		
Male		52 (14.56%)
Female		305 (85.43%)
<b>Relationship with the child - n (%)</b>		
Biological mother or father		341 (95.51%)
Foster mother or father		5 (1.40%)
Others		11 (3.08%)
<b>Education - n (%)</b>		
Illiterate		13 (3.64%)
Primary		22 (6.16%)
Elementary		37 (10.36%)
High school		162 (45.37%)
College		123 (34.45%)
<b>Socioeconomic level * - n (%)</b>		
Class A1	Higher	6 (1.68%)
Class A2		66 (18.48%)
Class B1	Middle-High	70 (19.60%)
Class B2		98 (27.45%)
Class C1	Middle-Low	72 (20.16%)
Class C2		37 (10.36%)
Class D	Low	8 (2.24%)
Class E	Extremely low	0 (0%)

Among the 357 study participants, 87 children (24.3%) were classified as borderline or clinical in the CBCL total emotional and behavioral problems scale, 123 (34.4%) had internalizing problems, and 55 (15.4%) had externalizing type problems (Table 2). Despite these results, the rate of use of mental health services in the group was very low, with only three children in the total sample (0.84%), two boys and one girl (Table 2) using these services. Among these three students, one was rated normal on the three CBCL scales (internalizing, externalizing, and total emotional and behavioral problem scales), while the other two had emotional and behavioral problems within the clinical classification range of the three scales. None of the remaining 87 children with MHP (in the clinical range on the CBCL total scale of emotional and behavioral problems) used mental health services (Table 2). Previous national studies reveal low rates of use of mental health services, with less than 20 to 30% of children/adolescents with MHP in different regions of Brazil receiving care from mental health professionals (Fatori et al., 2019; Paula et al., 2012; Paula et al., 2014). The data obtained in the present study are even more worrying, with only 0.84% of children with emotional and behavioral problems receiving care.

Most of the available data in Brazil point to the main barrier to receiving treatment to be the lack of infrastructure, mainly lack of services and the irregular distribution of mental health units around the country, in addition to being a child or adolescent from a family with a low socioeconomic background (Ceballos et al., 2019; Paula et al., 2014, 2022). Previous studies also report that mental health problems not being considered severe enough to seek professional assistance as a further barrier (Carter et al., 2004; Scheper & Visser, 2021). Although parents frequently fail to perceive their children's MHP (Bolar et al., 2016), a study by Fatori (Fatori et al., 2012) showed that when the parents recognized the problem, the vast majority sought treatment for them. Furthermore, there is a lack of professional training for identification and referral (O'Brien et al., 2016, 2019) to the Brazilian Psychosocial Care Network (Meirelles & Kantorski, 2021). There is also the question of the general stigma regarding the treatment of children with MHP (Paula et al., 2022; Paula et al., 2014; Reardon et al., 2017) or even stigma among professionals or health service/institutions that prevents problems in childhood being seen as problems of mental health, thus hindering their referral, diagnosis, and treatment (Scivoletto et al., 2020). Our study only investigated whether or not the children were using mental health services; however, some of these factors likely contributed to the fact that 85 (97.70%) of the children and adolescents classified into the clinical range on the CBCL/6-18 (table 2 - Total problems) were not being evaluated or receiving mental health interventions.

The distribution of the nine critical items in the total sample was as follows (Table 2): "physically attacking other people" (29 children/8.1%), "talks about killing self" (10 children/2.8%), "sees things that are not there" (7 children/1.9%), "set fires" (6 children/1.6%), "hears sounds or voices that are not there" (5 children/1.4%), "plays with private parts in public" (5 children/1.4%), "deliberately harms self or attempts suicide" (5 children/1.4%), "runs away from home" (3 children/0.84%) and "uses drugs" (0%). None of the parents reported drug use by their children. Table 2 shows the bivariate analysis results describing the distribution of

emotional and behavioral problems (total, externalizing, and internalizing) and critical items according to sex and use of mental health services. The students who scored positively on the externalizing scale were 11 times more likely to be assisted by a mental health professional in the last semester than their peers who were negative on this scale ( $p=0.05$ ; 95% CI: 1.01–127.08).

Review studies point out that externalizing problems, as is the case with both signs described here, are externalizing and observable behaviors, being easier to identify and, therefore, tend to be addressed and treated more quickly than internalizing problems that are poorly identified and usually not seen as problematic (Gleason et al., 2016; Polanczyk et al., 2015). However, despite these symptoms representing a warning sign in the study sample (53 children had externalizing problems), only two of them received care from a mental health service. Although this study is exploratory and has not investigated factors associated with the demand for mental health care services, the results show that awareness campaigns targeting parents are necessary to make them more sensitive to the need to seek care when children present emotional and behavioral problems.

A previous study aimed to identify global evidence of the barriers to accessing mental health services for children according to parents' reports focusing on low- and middle-income countries (LMIC) (Patel et al., 2013). Two main barriers were identified: the lack of existing evidence to inform the delivery of evidence-based treatments and difficulties in identifying children with mental disorders. This study showed critical evidence that emotional and behavioral problems are influenced by contextual factors, including the degree and perception of impairments produced by the condition. However, one crucial element in the care of children with signs of mental health problems is early identification using key informants in the community and providing adequate knowledge about mental health problems to parents and teachers to improve awareness about and the detection of mental disorders in school children (Patel et al., 2013).

A recent study in LMICs also showed barriers related to low levels of recognition and knowledge about mental health problems and illnesses, pervasive levels of stigma, and low confidence in professional healthcare services (Renwick et al., 2022). All these barriers show how LMICs still need much more significant and comprehensive investments in public policies that focus not only on the development of mental health services but also on the training of human resources and raising awareness among parents and teachers about the need to identify signs of psychopathologies in childhood (Kohrt et al., 2018). Although our study did not explore barriers to accessing mental health services, it is likely that these barriers also contributed to the outcome found in the present study, namely that only two children of 53 with externalizing problems received care from mental health services.

The bivariate analysis showed a marginally significant association between the type of school and a single critical item. Children from private schools were 0.5 times more likely to show the critical item 'hears sounds and voices that are not there' than their peers from public schools ( $p=0.06$ ; 95% CI: 0.45–0.56). The result is worrying because it signals an internalizing

emotional dysregulation that, even though reported by the parents, none of these children were receiving treatment from a mental health service (table 2). Moreover, internalizing problems can persist in the long term in both boys and girls, as was shown in a longitudinal study by Supke et al. (2021). They can cause serious impairment and economic impact on the family (Fatori et al., 2018).

Of the total sample, 123 children had internalizing problems (Table 2). It is worth emphasizing that because the need for treatment of children and adolescents with internalizing problems is less evident (Ceballos et al., 2019), parents must become more aware of these MHP as they significantly affect the adaptive functioning and socialization of children (Fatori et al., 2019). For example, ten children (three girls and seven boys) in our sample talked about suicide according to their parents' reports, but none of them used mental health services. Although saying that you are going to kill yourself cannot be interpreted as suicidal ideation, it is an indicator of a serious emotional problem. A Brazilian study that used data from the Hospital Information System to assess death rates of children under ten years old showed alarming rates of deaths from self-mutilation behaviors between 1998 and 2018 (Stuart-Bottó et al., 2019). The CBCL/6-18 is a low-cost instrument that can identify this type of risk (Achenbach, 2009). In addition to internalizing symptoms, an essential piece of data obtained from other critical items of the CBCL was the identification of 5 children who "hear voices that do not exist" and seven children who "see things that do not exist," both considered essential warning signs of emotional problems.

The bivariate analysis revealed that when the child presented the item "sets fire behavior," they were almost 35 times more likely to receive a mental health intervention than their peers without this type of behavior ( $p = 0.05$ ; 95% CI: 2.70-450,39). Although the nine critical items of the CBCL were initially established as severity markers, in this study, only one significantly increased mental health care use. This indicates that further studies need to be carried out with larger samples and other methodological designs to evaluate whether the other eight items should remain as indicators of serious emotional/behavioral problems and whether they can be considered signals for parents to seek mental health services.

The distribution of the nine critical items was similar concerning the students' sex, except for the item "plays with own sex parts," which was more prevalent among boys ( $p = 0.02$ ; 95% CI: 0.43-0.53). Previous studies also found this problem, classified as an externalizing problem, more reported among male children (van der Sluis et al., 2017; The Global Burden of Disease Child and Adolescent Health Collaboration, 2017). Neurotypical children can engage in sex games involving the sexual parts of their bodies, such as role-playing games (playing doctor), exploratory games to observe or touch the private parts, or even show curiosity about nudity or playing with the genitals. These sexual explorations are also more commonly reported in boys than girls (Finkel, 2012). The critical item of the CBCL refers to playing with the sex parts in public and is a frequent behavior of children with global developmental delay; however, IQ was not measured in this study.

**Table 2**

Factors associated with mental health problems according to the CBCL (critical items, and total, internalizing and externalizing problem scales) according to bivariate analysis: odds ratio with 95% confidence interval [OR (95% CI)] and p values for Fisher's exact test (N=357)

	CBCL (Clinical or Borderline Classification)	Child's Gender		OR (95% CI)	P	Used service		OR (95% CI)	P
		Female N (%)	Male N (%)			No N (%)	Yes N (%)		
Total Problems	No	142 (77.2)	128 (74.0)	1.19 *	0.48	269 (76.0)	1 (33.3)	6.33 **	0.15
	Yes	42 (22.8)	45 (26.0)	(0.73-1.99)		85 (24.0)	2 (66.7)	(0.57-70.67)	
Internalizing Scale	No	124 (67.4)	110 (63.6)	1.18 *	0.45	233 (65.8)	1 (33.3)	3.85 **	0.27
	Yes	60 (32.6)	63 (36.4)	(0.77-1.83)		121 (34.2)	2 (66.7)	(0.35-42.90)	
Externalizing Scale	No	157 (85.3)	145 (83.8)	1.12 *	0.69	300 (85.0)	1 (33.3)	11.36 **	0.06
	Yes	27 (14.7)	28 (16.2)	(0.63-2.00)		53 (15.0)	2 (66.7)	(1.01-127.50)	
Runs away from home	No	183 (99.5)	171 (98.8)	2.14 **	0.61	351 (99.2)	3 (100.00)	0.99 **	1.0
	Yes	1 (0.5)	2 (1.2)	(0.19-23.82)		3 (0.8)	0 (0.0)	(0.98-1.00)	
Sees things that are not there	No	180 (97.8)	170 (98.3)	0.79 **	1.00	347 (98.0)	3 (100.00)	0.99 **	1.0
	Yes	4 (2.2)	3 (1.7)	(0.17-3.60)		7 (2.0)	0 (0.0)	(0.98-1.00)	
Sets fires	No	183 (99.5)	168 (97.1)	5.45 **	0.11	349 (98.6)	2 (66.7)	34.90 **	0.05
	Yes	1 (5.0)	5 (2.9)	(0.63-47.10)		5 (1.4)	1 (33.3)	(2.70-450.39)	
Plays with own sex parts in public	No	184 (100.0)	168 (97.1)	0.48 **	0.03	349 (98.6)	3 (100.0)	0.99 **	1.00
	Yes	0 (0.0)	5 (2.9)	(0.43-0.53)		5 (1.4)	0 (0.0)	(0.98-1.00)	
Talks about killing self	No	181 (98.4)	166 (96.0)	2.54 **	0.21	344 (97.2)	3 (100.00)	0.99 **	1.00
	Yes	3 (1.6)	7 (4.0)	(0.65-10.00)		10 (2.8)	0 (0.0)	(0.98-1.00)	
Deliberately harms self or attempts suicide	No	181 (98.4)	171 (98.8)	0.71 **	1.00	349 (98.6)	3 (100.0)	0.99 **	1.00
	Yes	3 (1.6)	2 (1.2)	(0.12-4.28)		5 (1.4)	0 (0.0)	(0.98-1.00)	
Uses drugs for nonmedical purposes (do not include alcohol or tobacco) <sup>a</sup>	No	0	0	----					
	Yes	0	0	-----					
Physically attacks people	No	177 (96.2)	151 (87.3)	3.68 *	<0.01	325 (91.8)	3 (100.0)	0.99 **	1.00
	Yes	7 (3.8)	22 (12.7)	1.53-8.86		29 (8.2)	0 (0.0)	(0.98-1.00)	
Hears sounds and voices that are not there	No	181 (98.4)	171 (98.8)	0.71 **	1.00	349 (98.6)	3 (100.0)	0.99 **	1.00
	Yes	3 (1.6)	2 (1.2)	(0.12-4.28)		5 (1.4)	0 (0.0)	(0.98-1.00)	

Legend: Fisher Test - \*\*; Pearson Test - \*; 1 = none of the parents reported drug use by their children

This study does not allow us to determine what prevented students from receiving mental health treatment. According to a recent study, the main reasons are parents' lack of knowledge about symptoms or existing mental health resources, the resistance of children/adolescents to receive assistance, parental stigma related to mental health problems, bad experiences with services, and poverty, among others (Liverpool et al., 2023). Moreover, the results reinforce the need for awareness campaigns on child mental health in Brazil. The data used in this study were obtained before the COVID-19 pandemic. The COVID-19 pandemic interrupted in-person classroom education and the provision of mental health services. Studies show that the pandemic significantly worsened mental and emotional problems, so the prevalence of MHPs would likely have been even more significant than that reported in this study, while access to mental health services would have been even more limited (Ma et al., 2021; Wu et al., 2021).

The study has some limitations that should be mentioned: first, the parents were not asked if the use of the service was directly determined by the presence of general emotional/behavioral problems or related explicitly to particular critical items of the CBCL/6-18; second, the identification of critical items was based only on the report of one caregiver, although the ASEBA inventories allow comparisons to be made between different informants; third, the sampling was non-probabilistic and the sample size relatively small, not having the total eligible number of children from the schools of this sample. Therefore, our data are restricted to this sample, making it impossible to generalize the results.

Future studies could involve methodologies for comparing multiple informants, such as teachers and parents. The statistically significant association between the presence of one of the critical items and the use of mental health services, accuracy was low (represented by wide confidence intervals) due to the low frequency of the use of mental health services and the rarity of some of the most serious behaviors in this non-clinical sample. After the COVID-19 pandemic, probably, the number of children with severe emotional and behavioral problems in this sample will have increased. More Brazilian studies exploring mental health services in children are necessary, particularly studies using longitudinal models. It should be remembered that this study was conducted in a general sample of students, the incidence of which was unknown; despite this, we identified severe emotional and behavioral issues in almost a quarter of the total sample.

### **Final Considerations**

The wide-ranging, preliminary examination in this study indicates an evidence base for building an expanded public network of mental health services for children and adolescents that starts with evaluations in school. Although parents reported different serious behavioral problems (internalizing and externalizing), surprisingly, setting fires was the only serious problem (critical item of the CBCL/6-18) that was associated with the use of mental health services. It is not, therefore, possible to affirm that the critical items of the CBCL can be interpreted as initial signs

of psychopathologies. However, they indicate serious difficulties that should mobilize the parents to communicate these problems to the pediatricians caring for the child. More studies using the critical items of the ASEBA instruments are needed to establish their importance for clinical practice. Furthermore, the reasons behind the lack of identification and referral of children with emotional and behavioral problems by their parents deserve further and more in-depth study.

The results of the study contribute to the debate on mental health policies in respect of children and adolescents, highlighting the low use of services, especially among those who have emotional or behavioral difficulties of some degree of severity. Access to quality health services is essential to prevent worsening of behavioral problems and improve quality of life. The findings of this study can be helpful for health authorities to develop better detection of MHP in primary health care, to increase the number of mental health specialists caring for children and adolescents, to improve training for professionals specializing in mental health, as well as non-specialists (such as teachers), that can help to improve the referral of cases.



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