

*Full Length Research Paper*

# **Psychosocial profile of students from public schools of the city of Tubarão, Santa Catarina, Brazil with positive indicators for attention deficit hyperactivity disorder (ADHD)**

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The objective of this study was to verify the prevalence of positive indicators for attention deficit hyperactivity disorder (ADHD) in children of public schools throughout the urban perimeter of Tubarão, Santa Catarina (SC). The study population composed of students enrolled in the first grades of 10 schools from the city of Tubarão. First, the teachers filled a standard questionnaire defined by Diagnostic and Statistical Manual of Mental Disorders-Fourth Edition (DSM-IV). Next, the caretakers of children that were screened positive were invited for the application of a psychosocial questionnaire. Later, consultations with specialists were made in order to confirm the disorder. Of the 908 students assessed, 8.59% had a positive screening for ADHD, with a boy:girl ratio of 2,1:1. The predominance of ADHD symptoms of inattention was most prevalent (4.29%). The definitive diagnosis of ADHD was identified in 50% of the cases. The application of the DSM-IV questionnaire results in a screening of possible ADHD cases. However, to confirm the diagnosis, it is necessary that a consultation should be done with a specialist, since only 50% of the cases were confirmed.

**Key words:** Attention deficit, hyperactivity, impulsivity, students, prevalence.

## **INTRODUCTION**

The attention deficit hyperactivity disorder (ADHD) is one of the most common neuropsychiatric disorders of childhood and is responsible for several types of social damage, especially learning disabilities (Possa et al., 2005). The first references in literature about this disorder refer to the mid-nineteenth century, and since then, its nomenclature has been undergoing continuous changes (Rohde and Halpern, 2004). In 1940, it received the designation of "minimal brain damage" (Rohde and Halpern, 2004), it was classified as "hyperkinetic reaction

of childhood" (Diagnostic and Statistical Manual of Mental Disorders, DSM-II Second Edition, 1968) (American Psychiatric Association, 1968), and it was named "hyperactivity disorder with attention deficit" (DSM-III, Third Edition, 1980) (American Psychiatric Association, 1980). But the DSM-III-R (Third Edition Revised) framed the disorder as "hyperkinetic disorder" (American Psychiatric Association, 1987), and currently the most widely used classification systems in psychiatry are the International Statistical Classification of Diseases and Related Health Problems (ICD-10) (Organização Mundial da Saúde, 1993) and the DSM-IV (Fourth Edition) which classify the disease as hyperkinetic disorder and ADHD, respectively (American Psychiatric Association, 1994). These two classifications have more similarities than

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differences in their diagnostic guidelines, although they use different names (Rohde and Halpern, 2004).

ADHD is characterized by a persistent pattern of inattention and/or hyperactivity and impulsivity, represented by a deficit in the motor system, a low perception and a cognition disorder, affecting the learning of children with adequate intellectual potential, and resulting in functional impairment (Rohde and Halpern, 2004; Vasconcelos et al., 2003; Amaral and Guerreiro, 2001; Guardiola et al., 2000). Children with ADHD have difficulty in sustaining attention due to agitation and restlessness, which mostly represent hyperactivity and impulsivity (Graeff and Vaz, 2006), more frequent and intense when compared with other children of similar age and also of the same intellectual level (Poeta and Rosa Neto, 2006). This reflects significant impairment in social functions that include difficult relationships with family and friends, academic (low school performance) or professional, causing negative effects on self-esteem of children and adolescents, as well as the abuse of drugs and criminal behavior that may persist into adulthood (Poeta and Rosa Neto, 2007; Mello and Rosa Neto, 2005).

According to the DSM-IV, symptoms must be present in at least two situations, such as home and school, to meet the diagnostic criteria for ADHD (Kaplan et al., 1990). Symptoms usually begin before the age of seven (Poeta and Rosa Neto, 2007), although most are only diagnosed at later stage (Poeta and Rosa Neto, 2004). In many cases, the disorder is only recognized when the child enters school, because this is the period in which the difficulties of attention and restlessness are more frequently detected by teachers, when comparing with children of similar age (Poeta and Rosa Neto, 2007).

Children with ADHD are agitated, show emotional instability and are explosive and irritable (Kaplan et al., 1990). They do not focus on one activity at a time, they have difficulties in academic organization, failing to follow instructions and often require extra attention from their teachers. Besides the difficulty in maintaining a friendly relationship with other colleagues and, at home, they often cannot complete the tasks requested by parents (Kaplan et al., 1990; Poeta and Rosa Neto, 2004). Unnecessary body movements, impulsivity, anticipation of the answers, difficulty waiting one event, as well as school failure and motor disorders of balance, sense of time and space are symptoms that accompany the disorder (Poeta and Rosa Neto, 2004).

The prevalence of ADHD varies around 5% and may vary depending on the methodology used in the study and also on the population investigated (Poeta and Rosa Neto, 2007). In Brazil, studies have shown a prevalence of ADHD which varies from 3.5 to 18% among school children (Poeta and Rosa Neto, 2007). The disorder is most common in boys, predominantly hyperactivity symptoms, while in girls, the prevailing symptom is inattention (Antony and Ribeiro, 2004).

Despite being a frequent disorder in children, is being increasingly diagnosed in adolescents and adults, reflecting that the pathology is not restricted only to childhood (Freire and Pondé, 2005).

Approximately 30 to 70% of the children maintain the symptoms in adulthood, and it is estimated that between 0.3 to 3% of the adult population is affected by ADHD (Silva et al., 2006). Often, ADHD is associated with other psychiatric disorders, especially mood disorders, anxiety disorders and other disruptive disorders of behavior, such as conduct disorders, which generally indicates a more serious problem with bad prognosis (Possa et al., 2005; Cataldo et al., 2003; Rohde et al., 2000).

Despite the large number of previous studies, the precise causes of ADHD are not fully understood (Cataldo et al., 2003). The main factors implicated in the etiology are of genetic, biological and psychosocial nature (Rohde and Halpern, 2004). Epidemiological studies do not only demonstrate a significant familiar recurrence, but also a very high heritability for this disorder (Roman et al., 2002). It is believed that ADHD occurs by multiple genes of small effect that, together, confer vulnerability to the disorder (Rohde and Halpern, 2004). Changes in transporter genes (DAT1) and dopamine receptor (DRD4) are involved in susceptibility to ADHD, although negative results are also reported, suggesting that the disorder is due to a condition of multifactorial origin, both genetic and non-genetic (Rohde and Halpern, 2004; Pereira et al., 2005).

Psychosocial factors that interfere with adaptive functioning and emotional health of children, such as family disagreements, presence of mental disorders in parents, low social class, a very numerous family, criminality of parents and paternal psychopathology, may have an important role in the emergence and maintenance of the disease (Rohde and Halpern, 2004). The relationship of ADHD with complications in pregnancy and childbirth has also been reported (Poeta and Rosa Neto, 2006). Maternal exposure to smoking and alcohol during pregnancy and depression may also be predisposing factors for the disorder (Poeta and Rosa Neto, 2006).

The diagnosis of ADHD is mainly clinical and is based on clear criteria, defined from the classification systems DSM-IV and ICD-10 (Graeff and Vaz, 2006). Children with this disorder are easily recognized in clinics, schools or at home, although there are no laboratory tests, imaging or profiles on neuropsychological tests that are pathognomonic of the disorder (Fontana et al., 2007; Amaral, 2000).

ADHD is thus a major problem given the implications, ranging from difficulties in school development to psychological and social problems in the life of the child, adolescent or adult (Poeta and Rosa Neto, 2004).

Considering the importance of the subject, this work had the purpose of conducting an epidemiological study of ADHD in children of public schools from the urban

**Table 1.** Distribution of the study population divided by grade and distribution of the sample divided between male and female subjects.

School	Total	2 <sup>nd</sup> grade	3 <sup>rd</sup> grade	4 <sup>th</sup> grade	ADHD	Male	Female
A	116	41	40	35	5 (4.5%)	4	1
B	178	48	66	64	17 (9.5%)	12	5
C	66	21	20	25	7 (10.6%)	5	2
D	58	16	24	18	7 (12.1%)	3	4
E	52	16	20	16	12 (23.1%)	9	3
F	23	9	7	7	4 (17.4%)	2	2
G	111	38	39	34	2 (1.8%)	2	0
H	65	21	21	23	11 (16.9)	6	5
I	117	40	49	28	5 (4.3%)	2	3
J	122	44	51	27	8 (6.6%)	8	0
Total	908	294	337	277	78 (8.59%)	53	25

perimeter of Tubarão, a city located in the State of Santa Catarina (SC), Brazil. The benefits of this research, in relation to the children involved, included early identification of difficulties in learning, greater possibility of intervention in students with positive indicators for the problem and guidance for parents and teachers about the disorder to further improve their teaching methods. The early recognition of ADHD and proper management of this condition can redirect the educational and psychosocial development of most of these children.

## METHODOLOGY

The study was cross-sectional descriptive. The sample consisted of students enrolled in basic education from second to fourth grades of public schools in Tubarão (SC), located within the city limits, for a total of 908 students.

The study was approved by the ethics and research committee at the University of Southern Santa Catarina.

### First stage of the study

In the first screening, 10 schools from the urban perimeter were selected from the list of public schools, which was provided by the city office. Meetings were held with teachers and principals in order to define the voluntary participation in the survey and to sign an informed consent. The teachers were given a protocol with behavioral characteristics consistent with ADHD, according to DSM-IV, and selected students who might experience the disorder, for tracking purposes. Through interviews based on the script, an evaluation process that all respondents answered the same questions was established, with the same practical examples. This caution was predetermined to ensure that interviews were not different, as to increase the reliability in their results. But despite the care to ensure a possible diagnosis, this study took into account the subjectivity of the criteria, and therefore deemed it necessary to make an interview with a relative caretaker. The questionnaire contained 18 questions of the criterion A of DSM-IV and the students who had at least six of the nine criteria for inattention, or six of the nine criteria for hyperactivity/impulsivity, were referred to the next step.

### Second stage of the study

The caretakers of the students who were screened as positive for symptoms of ADHD received written invitation to attend the school to participate in the interview and the application of the psychosocial questionnaire from Poeta and Rosa Neto (2006). Those who did not attend the initial date received further invitations. During the interview, questions about pregnancy, childbirth, psychomotor development in early life, socioeconomic conditions and child behavior were addressed. At the end of the interview, the family received clarifications about the disorder, and so did the teachers and school directors.

### Third stage of the study

The pre-selected students were invited to attend the breast clinic of Universidade do Sul de Santa Catarina (UNISUL), accompanied by a responsible adult, for evaluation by a specialist and for refinement of data and definitive diagnosis of ADHD.

The collected data were digitized and analyzed using the software Epidata version 3.1 and Epi Info version 6.04.

## RESULTS

From the questionnaires completed by teachers, 78 (8.59%) possible cases of ADHD were identified. Table 1 shows the distribution of cases according to the grades, schools and gender. The analysis revealed that school E had the highest number of possible ADHD patients, with 23.1% of cases, whereas school G had the lowest rate, 1.8% (Table 1).

The age range of children identified with ADHD by teachers ranged between 7 and 14 years. The average age was 9.18 years with standard deviation of 1.6 years. Regarding the shift that the students screened as positive for ADHD were enrolled, 69 (88.5%) studied during the afternoon, while 9 (11.5%) studied during the morning. The sample was constituted predominantly by male individuals, at a ratio of 2.1:1 (67.9% boys and 32.1% of females) (Table 1).

**Table 2.** Frequency of ADHD subtypes found in the first screening, where n is the number of subjects.

ADHD subtype	n	Frequency (%)
Inattentive	39	50.0
Combined	31	39.70
Hiperactivity/Impulsivity	8	10.30
Total	78	100

The subtype of ADHD with predominance of inattention was recognized in 50% of the cases reported by teachers, the combined subtype in 39.7% and lastly, the subtype with predominance of hyperactivity/impulsivity in 10.3% of the children (Table 2).

The psychosocial questionnaire (second part of the study) was conducted with the person responsible for the child in an interview that had been previously scheduled and held at the school. Only 56 of the people responsible for the children attended, with 47 (83.9%) interviews conducted with the child's mother, 4 (7.1%) interviews with the paternal or maternal grandparents, 3(5.4%) interviews with the child's father, 1 (1.8%) interview with the child' elder brother of 18 years of age and 1 (1.8%) interview with another type of responsible.

On the gestation of the child, it was observed that 42 (75.0%) were normal pregnancies, whereas 14 (25.0%) were considered high-risk pregnancies. In high-risk pregnancies were included conditions such as risk of miscarriage, preeclampsia, eclampsia, bleeding in the third quarter and emotional shocks (either by fighting or violence) caused to the mother during pregnancy.

During pregnancy, 41 (73.2%) mothers were taking medication, 7 (12.5%) were smokers, 2 (3.6%) were users of illicit drugs, 1 (1.8%) was alcoholic and 5 (8.9%) used some continued use of medication.

Regarding the time of pregnancy, 2 (3.6%) were less than 32 weeks, 8 (14.3%) were greater than 32 and less than 37 weeks, 41 (73.2%) were considered term pregnancies (between 37 and 42 weeks) and 5 (8.9%) exceeded 42 weeks.

Regarding the type of delivery, 33 (58.9%) children were born by normal deliveries and 23 (54.3%) were born by cesarean section. Three mothers (5.4%) had some type of complication during delivery. Of the cases interviewed, 3 children (5.4%) had one of the perinatal complications. The age of mothers at delivery was less than 20 years in 15 cases (26.8%), from 20 to 29 years in 26 cases (46.4%), 30 to 39 in 11 cases (19.6%) and 40 years or more in 4 cases (7.1%).

With respect to children's weight at birth, 8 (14.3%) weighed less than 2,500 g, 21 (37.5%) weighed between 2,500 to 2,999 g, 24 (42.9%) weighed between 3,000 and 3,999 g and 3 (5.4%) weighed more than 4,000 g at birth. Regarding breastfeeding 15 (26.8%) children were not breastfed, 15 (26.8%) were breastfed until three months

old, 8 (14.3%) were breastfed for more than three and less than six months, 6 (10.7%) were nursed for a period exceeding six months and less than 12 months, while another 12 (21.4%) were breastfed beyond one year of life. The introduction of foods of more solid consistency occurred before three months of living in 4(7.1%) of the students, between three and six months of life in 19 students (33.9%), between six and twelve months in 29 students (51.8%), and after a year old in 4 students (7.1%).

The psychomotor development of the students in the first years of life took place as follows: first words were spoken before nine months of age for 11 (19.6%) children, 21 (37.5%) from nine to 12 months, 21 (37.5%) from 12 to 18 months and 3 (5.4%) only after 18 months of life; as for the march, the first steps were noticed before the age of ten months in 7 (12.5 %) children, 39 (69.6%) from 10 to 15 months, 9 (16.1%) from 16 to 21 months and only in 1 (1.8%) when the first steps were seen after 21 months of life.

The monthly family income was divided by numbers of minimum wages. In 14 (25.0%) family income was below the poverty level, in 40 (71.4%) monthly income was between 1 and 5 minimum salaries, in 1 (1.8%) monthly income was between 5 and 10 and also in 1 (1.8%) of the cases the family had a monthly income above 10 minimum wages (minimum wage at the time of the research was R\$ 465.00). Also, 85% of fathers and 57.2% of mothers contributed to the family income at the time of the interview (Table 3).

Regarding the level of parental education, it was observed that 39.3% had completed between the first and fourth grade of elementary school, 25% had completed between the fifth and eighth grade, 28% had completed at least one grade of high school and 1.8% had completed college (Table 3). 30.4% of mothers had completed at least one grade between the first and fourth grade of elementary school, 42.9% had completed between the fifth and eighth grade, 16.1% had completed at least one grade of high school and 5.3% had completed college (Table 3).

At home, 39 (69.6%) children had agitated, anxious and nervous behavior, while 17 (30.4%) children were quiet; 4(7.1%) children did not have a good relationship with their parents and were aggressive; 52 (92.9%) were loving children, educated and respected their parents; finally, 41 (73.2%) conformed well to the tasks requested by their relatives and 15 (26.8%) did not have this behavior.

Of the 78 children pre-selected at the beginning of the study, 32 (41%) attended the breast clinic of UNISUL to perform the third stage of the study: evaluation by a specialist. Of these, 16 cases were diagnosed with ADHD by medical consultation, which represents 50% of the sample. Major diagnoses were: conduct disorder, mental retardation, learning disabilities, social risk and family management problems.

**Table 3.** Level of schooling and parental profession, where n is the number of subjects.

Variable	n	Frequency (%)
<b>Father schooling</b>		
1 to 4° series	22	39.3
5 to 8° series	14	25
School	16	28.6
Advanced course	1	1.8
Unknown	3	5.3
Total	56	100
<b>Mother schooling</b>		
1 to 4° series	17	30.4
5 to 8° series	24	42.9
School	9	16.1
Advanced course	3	5.3
Unknown	3	5.3
Total	56	100
<b>Father profession</b>		
General service	44	78.6
Professional liberal	3	5.3
Retired	1	1.8
Unknown	8	14.3
Total	56	100
<b>Mother profession</b>		
Housewife	21	37.5
General service	31	55.4
Professional liberal	1	1.8
Unknown	3	5.3
Total	56	100

## DISCUSSION

The diagnostic criteria of DSM-IV are without doubt the most used means for diagnosis of ADHD. We identified 78 (8.59%) possible cases of ADHD among the population of 908 students from municipal schools. As the sample came from students identified by teachers, this may have underestimated or overestimated the prevalence of symptoms.

The percentage of possible cases of ADHD found in this study was similar to many other studies (Possa et al., 2005; American Psychiatric Association, 1994; Poeta and Rosa Neto, 2007; Freire and Pondé, 2005; Souza et al., 2001), although, the prevalence of ADHD reported in the literature varies in a very wide range. The age range of children identified with ADHD by teachers varied greatly, with children aged seven to fourteen years of age, and the predominant age being eight years old; the grades also varied, with children enrolled from second to fourth grade of elementary school.

The age of the population studied can exert important influence on the prevalence of ADHD. According to Scahill and Schwab-Stone (2000), the most common age of diagnosis occurs at seven and/or eight years, with increasing decline of the prevalence after this age. This information corroborated with the study, where prevalence was higher in students with eight years of age.

Predominance of positive indicators was observed for ADHD in males, with a ratio of 2.1:1, in agreement with literature data (Szatmary et al., 1989). The study of Szatmari et al. (1989), which examined a population of 2,687 individuals, aged 4 to 16 years in Canada, found a prevalence of 9.0 to 3.3% of boys and girls, a ratio of about 2.7:1.

The subtype of ADHD with a predominance of inattention was recognized in 50% of cases reported by teachers, the combined subtype in 39.7% and finally the subtype with a predominance of hyperactivity/impulsivity in 10.3% of the students, which is consistent with the study of Freire and Pondé (2005). However, other studies show that the combined type is most common in school children and the hyperactive type is the rarest of the three, as evidenced in the sample of Montiel-Nava et al. (2002) using the Conners scale with students aged 6 to 12 years in Venezuela. The prevalence was 5.7% for the combined subtype, 1.4% for the inattentive subtype and only 0.35% for the hyperactive subtype.

According to Rohde et al. (1998), the prevalence of ADHD varies widely depending on the type of sample, instruments and diagnostic criteria used and also the source of information obtained from parents and teachers in the process of diagnosis. However, there seems no reason to think of a difference in the prevalence of ADHD according to geographical distribution, since there is no information relevant to that topic in the literature (Freire and Pondé, 2005).

In analyzing the psychosocial questionnaire, it appears that there are several prenatal, perinatal and postnatal factors that may be associated with manifestations of attention deficit disorder and hyperactivity. According to Barkley (2002), mothers who have any complications during pregnancy or childbirth, are more likely to give birth to children with ADHD. Problems during pregnancy may interfere with normal development of the fetus and cause ADHD (Barkley, 2002). However, it should be noted that children who had a normal development during intrauterine life, without risk or complication may also have hyperactivity or learning difficulties during childhood or even adulthood (Poeta and Rosa Neto, 2006).

Montiel-Nava et al. (2002) showed that 82.5% of mothers of children with ADHD in their study showed no perinatal complications, corroborating the findings of this study, in which majority of mothers who were interviewed did not present any complication during pregnancy or childbirth.

Pineda et al. (2003) in a sample of 200 children identified the most common risk factors during pregnancy of the mother: risk of miscarriage (20%), hemorrhage at the

the third quarter of pregnancy (18%), hospitalization during the first months (17.2%). Such pathologies were also identified in this population, with 25.0% of the sample considered to be high-risk pregnancies.

Of mothers who had used any drug or continued use of medication during pregnancy, smoking was prevalent, reaching 26.8% of pregnant women. Cigarette smoking appears to contribute to the emergence of ADHD in children of smoking mothers, as the literature sources cite the maternal smoking and alcohol consumption as prenatal risk factors (Shapiro, 2002).

Vaginal delivery was predominant in the sample, which resembles the study of Poeta and Rosa Neto (2006), with values of 64.5%. Magalhães et al. (2003) suggest that a significant proportion of premature infants (19.4%) had indicators for attention deficit hyperactivity disorder and other psychiatric comorbidities during school age, such as conduct disorders. This study also found associations of preterm birth and indicators for ADHD similar to those of the authors.

With regard to psychomotor development, most of the students spoke the first words in the average expected age, which ranges from 9 to 12 months of age. However, in a significant proportion (42.9%), the pronunciation of the first words took place after the expected age. This data corroborates the research of Gupta and Ahmed (2003), in which a speech delay was detected in 48.6% of the identified group of ADHD. As for the ability to march, most of the students identified with ADHD took the first steps in the age range expected (10 to 15 months). Studies cite the slow development of motor coordination as one of the early symptoms of ADHD (Poeta and Rosa Neto, 2007).

Szatmary et al. (1989) found an association of significant psychosocial variables with ADHD, such as low income, crowded living conditions and family dysfunction. The present study identified a relationship between low socioeconomic status to behavior problems and learning disabilities in children, since in most identified cases the monthly rent was between one and five minimum wages, with a higher prevalence in poor families. The same could be seen in the population of Newcorn et al. (1994), which assessed children from a lacking public school, identifying a prevalence of 26%, contributing to that certain psychosocial factors, such as low income, are associated with the diagnosis of ADHD.

It is also worth mentioning other psychosocial factors related to ADHD: the education level and occupation of parents, family abandonment by the father or mother, household crowding and history of psychiatric illness of parents (Szatmary et al., 1989; Barkley, 2002). Some of these data were confirmed in this investigation. However, Barkley (2002) believes that these factors cause only a slight increase in risk for the disorder and by itself does not trigger ADHD.

Anxiety, restlessness and nervousness of the children were other common symptoms reported by the family during interviews. The study of Poeta and Rosa Neto

(2002) goes in the same direction, since children with ADHD are more prone to anxiety disorder when compared with other children without the disorder.

Other comorbidities related to ADHD were also mentioned, although less common: the conduct disorder, disorder of coordination, anxiety and depression. Their presence is relevant in people with ADHD, recommending the need for closer monitoring (Poeta and Rosa Neto, 2002).

After the child has passed by the medical examination and evaluation by a specialist, it was observed that the number of children confirmed with ADHD was inferior to that previously established with the questionnaire, as 50% of cases were confirmed; however, it is important to note that from the first group, only 41% of children attended for assessment with the specialist, which, therefore, may have underestimated or overestimated the actual value of the confirmations.

Wobraich et al. (1998) demonstrated the risk of using only the questionnaire of symptoms of ADHD in a study of 4,323 students, aged 5 to 12 years, in which the isolated assessment of symptoms by questionnaires completed by teachers, found a prevalence of 16.1% of ADHD. With the inclusion of other diagnostic criteria of DSM-IV, the prevalence fell to 6.8%, showing that satisfaction just for the symptoms is insufficient for the diagnosis of ADHD. So, in summary, information collected through the symptoms should be supplemented with a complete and careful clinical history, which includes an evaluation of functional consequences of children's behavior (Wobraich et al., 1998).

The study by Rohde et al. (1998) reported extremely low values, as 0.5%. Baumgaertel et al. (1995), in a study of school children in Germany, found prevalence values of 17.8%. Another example of high prevalence is the study by Fontana et al. (2007), who found values of 13.0% in a research conducted in four public schools in the state of Rio de Janeiro.

## Conclusion

Males were more affected than females and the most prevalent subtype was the predominant inattentive. The psychosocial evaluation obtained results similar to other studies found in literature and the identified differences may be due to the instruments used and, especially, according to the source of information obtained through the process of diagnostic evaluations by parents and teachers. The study also showed that after specialized medical evaluation, the prevalence of children effectively diagnosed with ADHD was reduced, since the application of the DSM-IV questionnaire results in a screening of possible ADHD cases. However, to confirm the diagnosis, a consultation with a specialist is necessary, since only 50% of the cases were confirmed.

The benefits of this research, in relation to the children involved, included the early identification of learning

disabilities, the greater possibility of intervention in students with positive indicators for the problem and guidance for parents and teachers about the disorder to further improve their teaching methods. The early recognition of ADHD and proper management of this condition can redirect the educational and psychosocial development of most of these children.

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