PREVALENCE OF ATTENTION DEFICIT HYPERACTIVITY DISORDER (ADHD) SYMPTOMS AND COMORBIDITIES IN CHILDREN AND ADOLESCENTS FROM A BRAZILIAN ISOLATED BLACK COMMUNITY

Karla Cristina Naves de Carvalho[1], Leonardo Ferreira Caixeta[2], Camila Silva Garcia[3], Gabriella Silva Garcia[4]

ABSTRACT
Objective: To assess prevalence of attention deficit hyperactivity disorder (ADHD) symptoms and comorbidities in children and adolescents aged 6 to 18 from a Kalunga community in the state of Goiás, Brazil. Case description: A sample of 204 Kalunga children and adolescents was evaluated based on the responses of their parents/guardians and teachers to the Child Behavior Checklist for ages 6–18 (CBCL/6–18) and the Teacher's Report Form for ages 6–18 (TRF/6–18), respectively. ADHD and attention deficit disorder (ADD) symptoms and comorbidities were detected in 5.9%, 5.4%, 16.2%, and 15.2% of the individuals assessed, by parents and teachers, respectively. Prevalence of ADD was higher than the national average, while ADHD presented prevalence similar to that of the world population. According to the evaluations of parents/guardians and teachers, the estimated prevalences of comorbid disorders in children and adolescents with signs and symptoms of ADHD and ADD were, respectively, 83%, 90%, 60.6%, and 64% with oppositional defiant disorder and 58.3%, 63.6%, 75.7%, and 80.6% with anxiety disorders. Conclusions: Due to the high prevalence of ADHD comorbidities found herein, further studies are necessary to assess the prevalence of other mental diseases in the studied community. Therefore, deeper knowledge on such a relevant theme can be generated.

Keywords: Kalunga; Prevalence; ADHD**;** Signals and symptons.

RESUMO
Objetivo: Avaliar a prevalência de sintomas e comorbidades de transtorno de déficit de atenção e hiperatividade (TDAH) em crianças e adolescentes de 6 a 18 anos de uma comunidade de Kalunga no estado de Goiás, Brasil. Descrição do caso: Uma amostra de 204 crianças e adolescentes de Kalunga foi avaliada com base nas respostas de seus pais / responsáveis e professores à Lista de Comportamento da Criança de 6 a 18 anos (CBCL / 6-18) e ao Formulário de Relatório do Professor para crianças de 6 a 18 anos (TRF / 6-18), respectivamente. Os sintomas e comorbidades de TDAH e de déficit de atenção (ADD) foram detectados em 5,9%, 5,4%, 16,2% e 15,2% dos indivíduos avaliados, respectivamente por pais e professores. A prevalência de DDA foi superior à média nacional, enquanto o TDAH apresentou prevalência semelhante à da população mundial. De acordo com as avaliações dos pais / responsáveis e professores, as prevalências estimadas de transtornos comórbidos em crianças e adolescentes com sinais e sintomas de TDAH e TDA foram, respectivamente, 83%, 90%, 60,6% e 64% 58,3%, 63,6%, 75,7% e 80,6% com transtornos de ansiedade. Conclusão: Devido à alta prevalência de comorbidades de ADHD encontradas neste estudo, são necessários estudos adicionais para avaliar a prevalência de outras doenças mentais na comunidade estudada. Portanto, um conhecimento mais profundo sobre um tema tão relevante pode ser gerado.

Palavras-chave: Kalunga; Prevalência; TDAH; Sinais e sintomas.

INTRODUCTION

Attention deficit hyperactivity disorder (ADHD) is quite common in children and adolescents and bring negative effects to their family, school, and social life, often persisting

1 Doutorado em Ciências da Saúde na Universidade Federal de Goiás. Medical School, Faculdade Unievangélica de Anápolis, Anápolis, GO, Brazil, medkarcri@yahoo.com.br
2 doutorado em Neurologia pela Universidade de São Paulo (2001), fellow em Neurologia Comportamental pela Universidade de Manchester na Inglaterra e vencedor do PRÊMIO JABUTI de 2015. Atualmente é Professor Associado de Neurologia da Universidade Federal de Goiás e Professor da Pós-Graduação de Ciências da Saúde e também Medicina Tropical e Saúde Pública, ambas da UFG. E-mai: leonardocaixeta1@gmail.com
3 Medicine student, Faculdade Alfredo Nasser, Goiânia, GO, Brazil. E-mail: camila.ss.garcia@gmail.com
4 Medicine student, Faculdade Alfredo Nasser, Goiânia, GO, Brazil. E-mail gabi.garcia55@hotmail.com

throughout their existence if not detected and treated. It is characterized by motor system, perceptual, cognition, and behavioral disturbances, compromising the learning process of people with adequate intellectual potential.[1-5] This syndrome also causes huge impact on society due to the high financial cost, the stress caused on families, the damage to vocational and academic activities and, above all, the negative effects on the self-esteem of children and adolescents.[5]

Although considerable research has been devoted to this area worldwide, it is still insufficient for the full knowledge of ADHD in children and adolescents.[2,6] Also, few studies have been conducted worldwide on this type of disorder in isolated rural communities and, so far, just two have been performed in Brazil.

In several national and international studies, mostly applied to school-age children, prevalence of ADHD lies between 3% and 6%.[7] This could lead to the false impression of low prevalence, and thus, children and adolescents in need of care would no longer receive appropriate assistance, both prophylactic and curative, while not constituting proper classic clinical cases.[2,6,8]

Therefore, this study aimed to assess the prevalence of ADHD symptoms and comorbidities in children and adolescents aged 6 to 18, belonging to the Kalunga Quilombola ethnic group (descendants of African runaway enslaved individuals), who live in an isolated rural community located in the municipality of Cavalcante, in the northeastern part of the state of Goiás, Brazil.

METHODS

Sample and procedures

All study procedures were approved by the Ethics Committee of the Universidade Federal de Goiás (protocol no. 21088913.5.0000.5078). The participants signed a written informed consent.

The study was conducted from August 2010 to November 2013 in the Kalunga isolated rural community located in the municipality of Cavalcante, state of Goiás, Brazil. The inclusion criteria were: (i) being parents/guardians and teachers of children and adolescents of both genders, aged 6 to 18 years old, who identified themselves as Kalunga and studied for at least 2 months in four schools of Cavalcante, namely Colégio Estadual Elias Jorge Cheim, Escola Municipal Alcy Alves Moreira, Escola Municipal Joselina Francisco Maia, and Escola

Municipal Engenho 2; (ii) accepting to participate in the study and signing the written informed consent; (iii) completely responding the inventories Child Behavior Checklist for ages 6–18 (CBCL/6–18) (parents/guardians) and the Teacher's Report Form for ages 6–18 (TRF/6–18 (teachers). The exclusion criteria were: (i) being parents/guardians and teachers of children under 6 years old and adolescents over 18 years old; (ii) not accepting to participate in the study; (iii) not completely responding the inventories CBCL/6–18 (parents/guardians) and TRF/6–18 (teachers); (iv) having communication difficulties. Therefore, a total sample of 204 parents/guardians (n = 198) and teachers (n = 21) of Kalunga children (n = 70) and adolescents (n = 134) aged 6 to 18 years old participated in this research.

Instruments

For the detection of ADHD symptoms and comorbidities in Kalunga children and adolescents, in the present study the Brazilian versions[9] of the CBCL/6–18[10-12] and TRF/6–18[11-13] were used. CBCL/6–18 obtains reports from parents, other close relatives, and/or guardians regarding children's behavioral and emotional problems and competencies. Scores are obtained for: (a) 113 items that describe specific behavioral and emotional problems, plus two open-ended items for reporting additional problems; (b) eight empirically based syndromes, derived using factor analysis;[11] (c) two scales derived from second-order factor analyses of the eight syndromes, one labeled "internalizing and comprising the anxious/depressed, withdrawn/depressed, and somatic complaint syndromes" and the other labeled "externalizing and comprising the rule-breaking behavior and aggressive behavior syndromes); and (d) total problems, which consists of the sum of ratings on all 120 problem items.[11]

Statistical analysis

Data obtained using CBCL/6–18 and TRF/6–18 were analyzed for comparisons across gender, age group, and educational attainment of the children and adolescents evaluated, both intra and inter-respondents (parents/guardians and teachers), employing the Statistical Package for Social Sciences version 18.0 for Windows (SPSS 18.0). To check the statistical significance between the findings p value was calculated using the Fisher's exact test, establishing $p < 0.05$ as significant. In the analysis conducted among respondents,

parents/guardians versus teachers, kappa (K) statistics was used for assessing the level of agreement between them.

RESULTS

A sample of 204 participants, namely 198 parents/guardians and 21 teachers, responded to CBCL/6–18 and TRF/6–18, respectively. The distribution of the 204 children (n = 70) and adolescents (n = 134) according to the age group (6–11 years and 12–18 years), gender, and educational attainment (elementary school or high school) is presented in Table 1.

In this study, we detected the presence of signs and symptoms of ADHD and ADD in the children and adolescents evaluated, with an estimated prevalence of 5.9% and 16.2%, respectively, when the screening was based on the responses of parents/guardians to CBCL/6–18, and 5.4% and 15.2%, respectively, based on the answers provided by the teachers to TRF/6–18.

Comparing the educational attainement with the estimated prevalence of ADHD and ADD, when respondents were teachers, using TRF/6–18, and when parents/guardians were respondents, using CBCL/6–18, no statistically significant difference was found (Table 2 and Table 3).

Table 1 Sociodemographic characteristics of Kalunga children and adolescents (n = 204), from the municipality of Cavalcante, GO, assessed from August 2010 to November 2013

Variable	Individuals	
	N	%
Age group		
6 a 11 years	70	33.3
12 a 18 years	134	66.7
Gender		
Female	110	54.0
Male	94	46.0
Educational attainment		
Elementary school	177	86.8
High school	27	13.2

According to both parents/guardians and teachers, about 11% of the individuals who were in high school showed presumption of ADHD, whereas for those attending elementary school, the prevalence was 5.1% and 4.5%, respectively (Table 2). A trend in concentration of pure ADD in elementary school was observed (p = 0.087). According to both parents/guardians and teachers, approximately 17% of the subjects studying in elementary school were assessed as having ADD, compared with 7.4% and 3.7% of high school students, respectively (Table 3).

Table 2 - Distribution of estimated prevalence of ADHD according to gender, educational attainment, and age of Kalunga children and adolescents (n = 204), from the municipality of Cavalcante, GO, based on the responses of parents/guardians and teachers to the screening questionnaires Child Behavior Checklist for ages 6–18 (CBCL/6–18) and Teacher's Report Form for ages 6–18 (TRF/6–18), respectively, assessed from August 2010 to November 2013

Respondent	Gender				IC 95%	*p*
	Female		Male			
	N	%	N	%		
Parents/guardians	14	12.6	19	20.4	0.27–1.20	0.182
Teachers	14	12.6	17	18.3	0.31–1.40	0.329
	Educational attainment					
	Elementary school		High school			
	N	%	N	%		
Parents/guardians	9	5.1	3	11.1	0.11–1.69	0.201
Teachers	8	4.5	3	11.1	0.09–1.53	0.165
Variable	Age band					
	6–11		12–18			
	N	%	N	%		
Parents/guardians	11	16.7	22	16.2	0.47–2.29	1.000
Teachers	10	15.2	21	15.4	0.43–2.22	1.000

Fisher's Exact Test.

Table 3 - Distribution of estimated prevalence of ADD according to gender, educational attainment, and age of Kalunga children and adolescents (n = 204), from the municipality of Cavalcante, GO, based on the responses of parents/guardians and teachers to the screening questionnaires Child Behavior Checklist for ages 6–18 (CBCL/6–18) and Teacher's Report Form for ages 6–18 (TRF/6–18), respectively, assessed from August 2010 to November 2013

Respondent	Gender				IC 95%	*P*
	Female		Male			
	N	%	n	%		
Parents/guardians	7	6.3	5	5.4	0.37–3.87	1.000
Teachers	7	6.3	4	4.3	0.43–5.29	0.758
	Educational attainment					
	Elementary school		High school			
	N	%	n	%		
Parents/guardians	31	17.5	2	7.4	0.60–11.79	0.264
Teachers	30	16.9	1	3.7	0.69–40.63	0.087
Variable	Age band					
	6–11		12–18			
	N	%	n	%		
Parents/guardians	1	1,5	11	8,1	0.02–1,38	0,108
Teachers	11	1,5	10	7,4	0.43–2.22	0,107

Fisher's Exact Test.

The percentage of ADD remained constant regardless of the age, while an increase in the percentage of ADHD was found with increasing age both based on the answers provided by parents/guardians to CBCL/6–18 and by teachers to TRF/6–18, although no statistical significance was detected (Table 2 and Table 3).

High concordance (K = 0.954) was found between the responses provided by parents/guardians using CBCL/6–18 and by teachers using TRF/6–18 regarding the behavior and performance of the children and adolescents evaluated to assess the estimated prevalence of ADHD (Table 4).

Table 4 - Concordance between respondents (parents/guardians vs teachers) regarding ADHD symptoms in Kalunga children and adolescents (n = 204), from the municipality of Cavalcante, GO, based on the responses of parents/guardians and teachers to the screening questionnaires Child Behavior Checklist for ages 6–18 (CBCL/6–18) and Teacher's Report Form for ages 6–18 (TRF/6–18), respectively, assessed from August 2010 to November 2013

		Teachers		K[1]	*P*[2]
		Yes (%)	No (%)		
Parents/guardians	Yes (%)	11 (100.0)	1 (0.5)	0.954	< 0.001
	No (%)	0(0.0)	192 (99.5)		

[1] K: Kappa coefficient.

[2] $p < 0.05$.

Based on the assessment of parents/guardians and teachers, the estimated prevalences of comorbid disorders in Kalunga children and adolescents with signs and symptoms of ADHD were, respectively, oppositional defiant disorder 83% and 90%, conduct disorder 41.6% and 45.4%, anxiety disorders 58.3% and 63.6%, and affective disorders 33.3% and 36.3%, whereas in subjects with signs and symptoms of ADD they were, respectively, oppositional defiant disorder 60.6% and 64%, conduct disorder 54.5% and 58%, anxiety disorders 75.7% and 80.6%, affective disorders 57.5% and 61.2%.

DISCUSSION

To the best of our knowledge, this is the first study on the prevalence of signs and symptoms of ADHD in Kalunga children and adolescents aged 6 to 18 years old. Few studies can be found about ADHD in isolated rural communities and specifically in black people in Brazil.

Furthermore, an important aspect of the method applied is the strategy of combining the opinions of different informants to generate diagnostic hypotheses, limited to the cases herein presented and considering that the purpose was not to effectively diagnose mental illnesses, but obtain a screening of the studied population. It is well known that individuals presenting with ADHD tend not to refer to symptoms of externalizing problems compared with other sources of information, such as parents/guardians and teachers.[7]

The world average estimated prevalence of ADHD is approximately 5.3%, based on varied sources, such as parents, teachers, subjects, and clinical evaluation,[14] similar to the

result of this study. Nevertheless, in some studies, higher estimated prevalences of ADHD were found, but it should be emphasized that the results were based solely on the assessment of teachers, without the requirement of functional impairment.[15] In a study screening 6–12-year-old students using diagnostic criteria from the Diagnostic and Statistic Manual of Mental Disorders – Fourth Edition (DSM-IV) as the first step and, as the second step, parents' interview with the researchers, during which they filled an ADHD symptom questionnaire, the prevalence of ADHD was 13%.

Among the studies on ADHD carried out in Brazil, a research on Karajá children and adolescents had more similarities with this work regarding methods, since the same instruments were used in both. In that work, the prevalence of ADHD was 10.4% when respondents were parents and 2.8% when respondents were teachers.[16]

Comparing our data with the results obtained in a study with children aged 7 to 14 years old, using clinical evaluation based on the analysis of various sources of informants, with the requirement of functional impairment to diagnose the disorder, in all cases the authors found higher and statistically significant ($p < 0.001$) prevalence of ADHD.[17]

In a study on African-Brazilian children and adolescents aged 5 to 14 years old, with the requirement of functional impairment, using clinical evaluation based on various informers, the estimated prevalence of ADHD was lower than that found in this work for all situations ($p < 0.001$). [18]

A survey on African-American children was conducted to compare individuals with and without ADHD. The authors reported that children presenting with ADHD had higher rates of comorbidities for almost all psychiatric disorders assessed, although statistical significance was only found for oppositional defiant disorder, anxiety disorders, major depression, and bipolar disorder.[19]

Comparing the results of this study with those obtained in a research to evaluate the prevalence, comorbid conditions, and impairments of ADHD among young adolescents, aged 12 to 14 years old, in Porto Alegre, Brazil, using a screening instrument based on the 18 DSM-IV ADHD symptoms, in all cases rates for Kalunga children and adolescents were higher and presented statistical significance ($p < 0.05$).[20]

In most studies on Brazilian children and adolescents in which the methodology included the need for negative impact (dysfunction) on the subject's life, estimated prevalence

rates of ADHD were lower than those found herein among Kalunga children and teenagers, as repeatedly demonstrated in the literature.

Analyzing the present results in comparison with a study conducted in Canada for the assessment of Inuit children and adolescents aged 6 to 10 years old, having parents and teachers as informants and without the requirement of functional impairment, the prevalence rates of ADHD in our study are lower.[21] The fact that the Brazilian population evaluated herein is poorer than the Canadian sample reinforces the biological component of ADHD, regardless of the socioeconomic circumstances in which the individual lives.

Based on the results obtained from the responses provided by parents/guardians and teachers to CBCL/6–18 and TRF/6–18, respectively, the presence of symptoms and comorbidities of ADHD in the population of children and adolescents evaluated was confirmed. This discovery leads to the reflection on the well known and discussed, but not yet conclusive, issue of biological influences versus environmental influences.[22,23,24]

The symptoms and comorbidities of ADD presented higher prevalence in the sample compared with the world average and some studies in Brazil, proving to be a mental health problem in children and teenagers all over the world. In contrast, the symptoms and comorbidities of ADHD in this sample showed prevalence similar to that of the world population. Unlike the results found in the literature, which show a prevalence od ADHD and ADD in males, in the present study they were more prevalent in females.[17,25]

This work provided the opportunity to learn about cross-cultural variables that may influence the epidemiology of mental illness. It is still to be known whether the prevalence of mental illness differs between black people from urban and rural communities. The fact that the population under study is relatively isolated geographically reinforces the correlation between nature and nurture. The present data show that the low environmental stress experienced by this community did not seem to influence the prevalence of mental disorders detected, since it is similar to that reported for black populations living in totally different environments. Therefore, it seems that genetic factors determine mental illness more than the environment and, therefore, nature would present more influence than nurture.

According to the assessments of parents/guardians and teachers, the comorbidities (oppositional defiant disorder, conduct disorder, anxiety disorders, and affective disorders) showed high prevalence. Therefore, further research is needed to assess the prevalence of

other mental disorders in the community studied in order to generate deeper knowledge about such a relevant theme and the peculiarities of Kalunga children and adolescents.

CONCLUSION

Based on the answers provided by parents / guardians and teachers, the prevalence of signs and symptoms of mental disorders in the Kalunga children and adolescents population was evaluated. Although they have the Cerrado in their backyard, unlike most Brazilian children and adolescents living in large urban centers, cloistered in their homes, apartments or schools, the individuals evaluated in this study showed signs and symptoms of mental disorders. Contrary to the results of most population-based studies with children and adolescents, in the present study it was observed that mental health problems were more common in younger than in the older subjects. In addition, it was found that girls were more affected by internalizing problems than boys, contrary to the literature. Finally, despite some unexpected results, based on solid statistical data collected with scientific rigor, it was possible to generate knowledge that can help to develop planning guides of action and interventions of the competent public institutions.

As this was a prevalence study in an ancestral community of quilombola remnants relatively isolated in rural areas, it offers the opportunity to learn about transcultural variables that may influence the epidemiology of mental illness. The fact that this population is relatively isolated geographically and ethnically pure confers precision to the correlation between nature and environment. The data obtained show that the low environmental stress demand experienced by this community did not seem to influence the high prevalence of mental disorders detected, that is, the environment seemed to have less influence on the determination of the mental illness than the genetic factors. Therefore, in this particular aspect, nature would have exerted more influence than the environment. This fact corroborates the fact that black individuals living in very different environments present similar prevalences of mental illness.

However, when cross-cultural factors are studied, there are difficulties imposed by the adequacy to the evaluated sample of measures and instruments used in the information collection. In the present case, there were no previous studies with this specific population for the validation of the instruments used. Thus, it is suggested that in later studies other factors be addressed, such as the better characterization of how the high prevalence of consanguine

marriages in the community studied could be influencing the determination of a higher prevalence of mental disorders. It would also be interesting to compare the differences in prevalence of consanguinity between the individuals in the mental illness group and those who do not, in order to verify if they were significant.

REFERENCES

1. Almeida-Filho, N. Development and assessment of the QMPI: a Brazilian children's behaviour questionnaire for completion by parents. Soc. Psychiatry. 1981;16:205-11. DOI: 10.1007/BF00582661.

2. Costello EJ, Egger H, Angold A. 10-year research update review: the epidemiology of child and adolescent psychiatric disorders: I. Methods and public health burden. J Am Acad Child Adolesc Psychiatry. 2005;44:972-86. DOI: 10.1097/01.chi.0000172552.41596.6f.

3. Giel R, Arango MV, Climent CE, et al. Childhood mental disorders in primary health care: results of observations in four developing countries. Pediatrics. 1981;68:677-83. PMID: 7312471.

4. Meltzer H, Gatward R, Goodman R, Ford T. The mental health of children and adolescents in Great Britain. London: Office for National Statistics; 2000. Available at: http://www.dawba.info/abstracts/B-CAMHS99_original_survey_report.pdf. Accessed March 12, 2014.

5. Rohde LA, Biederman J, Knijnik MP et al. Exploring different information sources for DSM-IV ADHD diagnoses in Brazilian adolescents. J Atten Disord. 1999;3:91-3. DOI: 10.1177/108705479900300203.

6. Fleitlich BW, Goodman R. Epidemiologia. Rev Bras Psiquiatr, 2000;22:2-6. DOI: 10.1590/S1516-44462000000600002.

7. Rohde LA, Busnello ED, Chachamovich E, Vieira GM, Pinzon V, Ketzer CR. Transtorno de déficit de atenção/hiperatividade: revisando conhecimentos. Rev Bras Psiquiatr. 1998;20:166-78. DOI: 10.1590/S1516-44462000000600003.

8. Jellinek M, Little M, Murphy JM, Pagano M. The Pediatric Symptom Checklist: support for a role in a managed care environment. Arch Pediatr Adolesc Med. 1995;149:740-746. DOI: 10.1001/archpedi.1995.02170200030004.

9. Bordin IAS, Mari JJ, Caeiro MF. Validação da versão brasileira do Child Behavior Checklist (CBCL) (Inventário de Comportamentos da Infância e Adolescência): dados preliminares. Rev ABP/APAL. 1995;17:55-66.

10. Achenbach TM. Multicultural evidence-based assessment of child and adolescent psychopathology. Transcult Psychiatry. 2010;47:707-726. DOI: 10.1177/1363461510382590.

11. Achenbach TM, Becker A, Döpfner M, et al. Multicultural assessment of child and adolescent psychopathology with ASEBA and SDQ instruments: research findings, applications, and future directions. J Child Psychol Psychiatry. 2008;49:251-75. DOI: 10.1111/j.1469-7610.2007.01867.x.

12. Achenbach TM, Rescorla LA. Multicultural understanding of child and adolescent psychopathology: implications for mental health assessment. New York: Guilford Press; 2007.

13. Achenbach TM, Rescorla LA. Multicultural Supplement to the Manual for the ASEBA School-Age Forms & Profiles. Burlington, VT: University of Vermont, Research Center for Children, Youth, & Families; 2007.

14. Polanczyk G, Lima MS, Horta BL, Biederman J, Rohde LA. The worldwide prevalence of ADHD: a systematic review and metaregression analysis. Am J Psychiatry. 2007;164:942-8. DOI: 10.1176/appi.ajp.164.6.942.

15. Vasconcelos MM, Werner Jr. J, Malheiros AFA, Lima DFN, Santos ISO, Barbosa JB. Prevalência do transtorno de déficit de atenção/hiperatividade numa escola pública primária. Arq Neuro-Psiquiatr. 2003;61: 67-73. DOI: 10.1590/S0004-282X2003000100012.

16. Azevêdo PVB, Caixeta L, Andrade LHS, Bordin IA. Attention deficit/hyperactivity disorder symptoms in indigenous children from the Brazilian Amazon. Arq Neuro-Psiquiatr. 2010;68:541-4. DOI: 10.1590/S0004-282X2010000400012.

17. Fleitlich-Bilyk B, Goodman R. Prevalence of child and adolescent psychiatric disorders in southeast Brazil. J Am Acad Child Adolesc Psychiatry. 2004;43:727-34. DOI: 10.1097/01.chi.0000120021.14101.ca.

18. Goodman R, Santos DN, Nunes APR, Miranda DP, Fleitlich-Bilyk B, Almeida-Filho N. The Ilha de Maré study: a survey of child mental health problems in a predominantly African-Brazilian rural community. Soc Psychiatry Psychiatr Epidemiol. 2005;40:11-7. DOI: 10.1007/s00127-005-0851-z.

19. Samuel VJ, Biederman J, Faraone SV, et al. Clinical characteristics of attention deficit hyperactivity disorder in African American children. Am J Psychiatry. 1998;155:696-8. PMID: 9585726.

20. Rohde LA, Biederman J, Busnello EA, et al. ADHD in a school sample of Brazilian adolescents: a study of prevalence, comorbid conditions, and impairments. J Am Acad Child Adolesc Psychiatry. 1999;38:716-22. DOI: 10.1097/00004583-199906000-00019.

21. Baydala L, Sherman J, Rasmussen C, Wikman E, Janzen H. ADHD characteristics in Canadian Aboriginal children. J Atten Disord. 2006;9:642-7. DOI: 10.1177/1087054705284246.

22. Lancy DF. When nurture becomes nature: ethnocentrism in studies of human development. Behav Brain Sci. 2010;33:99-100. DOI: 10.1017/S0140525X10000154.

23. Vrba, K.; Vogel, W.; Vries, P.J. Management of ADHD in children and adolescents: clinical audit in a South African setting. J Child Adolesc Ment Health. 2016,28,1:1-19. DOI: 10.2989/17280583.2015.1128437.

24. Banaschewski, T.; Zuddas, A.; Asherson, P.; Coghill, D.; Buitelaar, J.; Danckaerts, M.; Döpfner, M.; Sonuga-Barke, E. ADHD and Hyperkinetic Disorder. 2. Oxford Psychiatry Library. United Kingdom. Oxford University Press. 2015. 160 p. DOI: 10,1007/s00787-016-0929-Z.

25. Kim, Ina. Effect of socioeconomic factors on parental stress in pediatric attention-deficit hyperactivity disorder. OpenBu. 2016. 6-44. DOI: 10,1001/archpedi.162.11.1009.

Abbreviations

ADD – Attention Deficit Disorder
ADHD - Attention Deficit Hyperactivity Disorder
ASEBA - Achenbach System of Empirically Based Assessment (Sistema de Avaliação Empiricamente Baseado de Achenbach)
CBCL/6-18 - Child Behavior Checklist for Ages 6–18
DSM - Diagnostic and Statistical Manual of Mental Disorders
k - Índice Kappa
QMPI - Questionário de Morbidade Psiquiátrica Infantil
SPSS 18.0 - Statistical Package for Social Sciences version 18.0 for Windows
TDA - Transtorno de déficit de atenção
TDAH - Transtorno de déficit de atenção com hiperatividade
TRF/6–18 - Teacher's Report Form for ages 6–18