DİKKAT EKSİKLİĞİ HİPERAKTİVİTE BOZUKLUĞU

29. BÖLÜM

Günay BUDAGOVA[1]

TANIM VE TARİHÇE

Temel belirtileri dikkatsizlik, hiperaktivite ve dürtüsellik olan Dikkat Eksikliği Hiperaktivite Bozukluğu (DEHB), en sık rastlanan çocukluk çağı psikiyatrik hastalıklarından biridir (1).

İlk kez DSM sınıflamasına (Diagnostic and Statistical Manual of Mental Disorders) "Çocuklukta hiperkinetik reaksiyon" adı altında DSM-II'de girmiştir. 1980 senesinde DSM-III'de "Dikkat Eksikliği Bozukluğu" terimi kullanılmıştır (2).

DSM-IV'te (1994) Dikkat eksikliği "Dikkat Eksikliği ve Yıkıcı Davranış Bozuklukları" başlığı altında yer alarak, çekirdek belirtileri dikkatsizlik ve hiperaktivite/dürtüsellik olan ve her birinde dokuz belirti yer alan iki semptom kümesinden oluşmaktadır. Tanı için her semptom kümesinden en az birinde altı belirtinin 6 aydır mevcut olması ve 7 yaşından önce başlanması şartı aranmaktadır (2,3).

Son olarak, DSM-5'te (2013) DEHB'nin tanı kriterlerinde önemli değişiklikler yapılmıştır. Öncelikle "Nörogelişimsel Bozukluklar" başlığı altında yer alarak, yaşam boyu süren bir bozukluk olduğuna dikkat çekilmiştir. Belirtilerin başlangıç yaşı 7 yerine 12 olarak değiştirilmiş ve DEHB tanısı için otizm spektrum bozukluklarının (OSB) dışlama ölçütü olması kaldırılmıştır. 17 yaş üstünde tanı için beş dikkat eksikliği veya hiperaktivite belirtisini karşılamak yeterli bulunmuştur (Tablo 1) .

EPİDEMİYOLOJİ

Yüksek prevalansı, yaşam kalitesi ve buna bağlı ekonomik yük üzerindeki önemli etkilerinden dolayı (4), DEHB çocuk psikiyatrisinin en çok araştırılan bozukluklarındandır ve yetişkin ruh sağlığı uzmanları tarafından da giderek daha fazla ilgi görmektedir (5).

Epidemiyolojik çalışmalar DEHB'nin dağılımı ve etiyolojisinin anlaşılmasının yanı sıra etkilenen çocuklar için doğru hizmet planlamasına katkıda bulunmuştur (6).

Dünya genelinde DEHB'nin yaygınlığı ile ilgili çok sayıda çalışma yapılmıştır. Bu çalışmalardaki yaygınlık oranlarının %0,2 ila %27 arasında değiştiği görülmüştür (7).

Dünya genelinde DEHB'nin ortalama yaygınlığının %5,29 ve %5,9-7,1 olduğu yapılan iki kapsamlı meta-analiz çalışması ile gösterilmiştir (8, 9). Coğrafi ve ırksal nedenlerin prevalans farklılıkları üzerine etkisinin olmadığı, bu farkın daha çok metodolojideki farklılıklardan kaynaklandığı belirtilmiştir (7-9). Willcutt ve arkadaşlarının (2012) yaptığı meta-analiz çalışmasının sonuçlarına göre, kliniğe başvuran olgularda kombine tip DEHB'ye, toplum bazlı çalışmalarda ise dikkat eksikliği baskın tipe (DEHB-DE) daha fazla rastlanılmaktadır. Erkeklerde her üç alt tipe de sık rastlandığı, kızlarda ise dikkat eksikliği baskın tipin diğer alt tiplere nazaran daha sık görüldüğü bildirilmiştir (9, 10). Yine aynı çalışmada okul öncesi dönem sonrasında hiperaktivite-impulsivite baskın tip sıklığının azalarak, dikkat eksikliği baskın tip sıklığının arttığı, her üç alt tip arasında zaman zaman birbirine geçiş olabileceği bildirilmiştir (9).

[1] Doktor Öğretim Üyesi, Biruni Üniversitesi Tıp Fakültesi Hastanesi, Çocuk ve Ergen Psikiyatri Kliniği, gbudagova@biruni.edu.tr
ORCID iD: 0000-0001-8851-7239

Tablo 2. DEHB'de Prognozu Öngörücü Faktörler	
Kişisel özellikler	IQ Agresyon düzeyi Düşük engellenme eşiği DEHB şiddeti
Sosyal-akademik parametreler	Akran ilişkileri Erişkinlerle ilişkiler Okul başarısı
Ailesel özellikler	Ailede psikiyatrik hastalıklar Sosyoekonomik düzey Evdeki duygusal ortam Çocuk yetiştirme tutumları

KAYNAKÇA

1. Pliszka SJJAACAP. AACAP Work Group on Quality Issues Practice parameter for the assessment and treatment of children and adolescents with attention-deficit/hyperactivity disorder. 2007;46(7):894-921.
2. Mukaddes ,N.M.,Yaşam Boyu Dikkat Eksikliği Hiperaktivite Bozukluğu ve Eşlik Eden Durumlar.2015.
3. Dsm-Iv-tr AJW, DC: American Psychiatric Association. Diagnostic and statistical manual of mental disorders, text revision. 2000.
4. Cortese S, Barbui C. Attention-deficit/hyperactivity disorder (ADHD): from randomised controlled trials to evidence-based clinical services. Epidemiology and psychiatric sciences. 2017;26(5):445-7.
5. De Crescenzo F, Cortese S, Adamo N, Janiri L. Pharmacological and non-pharmacological treatment of adults with ADHD: a meta-review. Evidence-Based Mental Health. 2017;20(1):4-11.
6. Polanczyk G, Rohde LA. Epidemiology of attention-deficit/hyperactivity disorder across the lifespan. Current opinion in psychiatry. 2007;20(4):386-92.
7. Polanczyk G, Jensen P. Epidemiologic considerations in attention deficit hyperactivity disorder: a review and update. Child and adolescent psychiatric clinics of North America. 2008;17(2):245-60.
8. Polanczyk G, De Lima MS, Horta BL, Biederman J, Rohde LA. The worldwide prevalence of ADHD: a systematic review and metaregression analysis. American journal of psychiatry. 2007;164(6):942-8.
9. Willcutt EG. The prevalence of DSM-IV attention-deficit/hyperactivity disorder: a meta-analytic review. Neurotherapeutics. 2012;9(3):490-9.
10. Skounti M, Philalithis A, Galanakis E. Variations in prevalence of attention deficit hyperactivity disorder worldwide. European journal of pediatrics. 2007;166(2):117-23.
11. Association AP. Diagnostic and statistical manual of mental disorders. Washington, DC: American Psychiatric Association; 1994.
12. Staller J, Faraone SV. Attention-deficit hyperactivity disorder in girls. CNS drugs. 2006;20(2):107-23.
13. Erşan EE, Doğan O, Doğan S, Sümer H. The distribution of symptoms of attention-deficit/hyperactivity disorder and oppositional defiant disorder in school age children in Turkey. European child & adolescent psychiatry. 2004;13(6):354-61.
14. Gul N, Tiryaki A, Kultur SEC, Topbas M, Ak I. Prevalence of attention deficit hyperactivity disorder and comorbid disruptive behavior disorders among school age children in Trabzon. Klinik Psikofarmakoloji Bülteni-Bulletin of Clinical Psychopharmacology. 2010;20(1):50-6.
15. Ercan ES, Kandulu R, Uslu E, Ardic UA, Yazici KU, Basay BK, et al. Prevalence and diagnostic stability of ADHD and ODD in Turkish children: a 4-year longitudinal study. Child and adolescent psychiatry and mental health. 2013;7(1):30.
16. Faraone SV, Doyle AE. The nature and heritability of attention-deficit/hyperactivity disorder. Child and adolescent psychiatric clinics of North America. 2001;10(2):299-316.
17. Thapar A, Harrington R, McGuffin P. Examining the comorbidity of ADHD-related behaviours and conduct problems using a twin study design. The British Journal of Psychiatry. 2001;179(3):224-9.
18. Schachar R. Genetics of attention deficit hyperactivity disorder (ADHD): Recent updates and future prospects. Current developmental disorders reports. 2014;1(1):41-9.
19. Akutagava-Martins GC, Salatino-Oliveira A, Kieling CC, Rohde LA, Hutz MH. Genetics of attention-deficit/hyperactivity disorder: current findings and future directions. Expert review of neurotherapeutics. 2013;13(4):435-45.
20. Faraone SV, Perlis RH, Doyle AE, Smoller JW, Goralnick JJ, Holmgren MA, et al. Molecular genetics of attention-deficit/hyperactivity disorder. Biological psychiatry. 2005;57(11):1313-23.
21. L H. Attention deficit hiperactivity disorder. Saddock BJ, Saddock VA, editors Comprehensive Textbook of Psychiatry USA : Lippincott Williams & Wilkins 2005
22. Sprich S, Biederman J, Crawford MH, Mundy E, Faraone SV. Adoptive and biological families of children and adolescents with ADHD. Journal of the American Academy of Child & Adolescent Psychiatry. 2000;39(11):1432-7.
23. Morrison JR, Stewart MA. The psychiatric status of the legal families of adopted hyperactive children. Archives of General Psychiatry. 1973;28(6):888-91.
24. Sharp SI, McQuillin A, Gurling HM. Genetics of attention-deficit hyperactivity disorder (ADHD). Neuropharmacology. 2009;57(7-8):590-600.
25. Coghill D, Banaschewski T. The genetics of attention-deficit/hyperactivity disorder. Expert review of neurotherapeutics. 2009;9(10):1547-65.
26. Li Z, Chang S-h, Zhang L-y, Gao L, Wang J. Molecular genetic studies of ADHD and its candidate genes: a review. Psychiatry research. 2014;219(1):10-24.
27. Ebstein RP, Novick O, Umansky R, Priel B, Osher Y, Blaine D, et al. Dopamine D4 receptor (D4DR) exon III polymorphism associated with the human personality trait of novelty seeking. Nature genetics. 1996;12(1):78.
28. Chen C, Burton M, Greenberger E, Dmitrieva J. Population migration and the variation of dopamine D4 receptor (DRD4) allele frequencies around the globe. Evolution and Human Behavior. 1999;20(5):309-24.

29. Zhou K, Chen W, Buitelaar J, Banaschewski T, Oades RD, Franke B, et al. Genetic heterogeneity in ADHD: DAT1 gene only affects probands without CD. American Journal of Medical Genetics Part B: Neuropsychiatric Genetics. 2008;147(8):1481-7.
30. Franke B, Vasquez AA, Johansson S, Hoogman M, Romanos J, Boreatti-Hümmer A, et al. Multicenter analysis of the SLC6A3/DAT1 VNTR haplotype in persistent ADHD suggests differential involvement of the gene in childhood and persistent ADHD. Neuropsychopharmacology. 2010;35(3):656.
31. Durston S, de Zeeuw P, Staal WG. Imaging genetics in ADHD: a focus on cognitive control. Neuroscience & Biobehavioral Reviews. 2009;33(5):674-89.
32. Castellanos FX, Lee PP, Sharp W, Jeffries NO, Greenstein DK, Clasen LS, et al. Developmental trajectories of brain volume abnormalities in children and adolescents with attention-deficit/hyperactivity disorder. Jama. 2002;288(14):1740-8.
33. Durston S, Pol HEH, Schnack HG, Buitelaar JK, Steenhuis MP, Minderaa RB, et al. Magnetic resonance imaging of boys with attention-deficit/hyperactivity disorder and their unaffected siblings. Journal of the American Academy of Child & Adolescent Psychiatry. 2004;43(3):332-40.
34. Greven CU, Bralten J, Mennes M, O'Dwyer L, van Hulzen KJ, Rommelse N, et al. Developmentally stable whole-brain volume reductions and developmentally sensitive caudate and putamen volume alterations in those with attention-deficit/hyperactivity disorder and their unaffected siblings. JAMA psychiatry. 2015;72(5):490-9.
35. Filipek PA, Semrud-Clikeman M, Steingard R, Renshaw P, Kennedy D, Biederman J. Volumetric MRI analysis comparing subjects having attention-deficit hyperactivity disorder with normal controls. Neurology. 1997;48(3):589-601.
36. Seidman LJ, Valera EM, Makris N. Structural brain imaging of attention-deficit/hyperactivity disorder. Biological psychiatry. 2005;57(11):1263-72.
37. Valera EM, Faraone SV, Murray KE, Seidman LJ. Meta-analysis of structural imaging findings in attention-deficit/hyperactivity disorder. Biological psychiatry. 2007;61(12):1361-9.
38. van Ewijk H, Heslenfeld DJ, Zwiers MP, Buitelaar JK, Oosterlaan J. Diffusion tensor imaging in attention deficit/hyperactivity disorder: a systematic review and meta-analysis. Neuroscience & Biobehavioral Reviews. 2012;36(4):1093-106.
39. Onnink AMH, Zwiers MP, Hoogman M, Mostert JC, Kan CC, Buitelaar J, et al. Brain alterations in adult ADHD: effects of gender, treatment and comorbid depression. European Neuropsychopharmacology. 2014;24(3):397-409.
40. Almeida Montes LG, Ricardo-Garcell J, De la Torre LB, Prado Alcántara H, Martínez García RB, Ávila Acosta D, et al. Cerebellar gray matter density in females with ADHD combined type: a cross-sectional voxel-based morphometry study. Journal of attention disorders. 2011;15(5):368-81.
41. McAlonan GM, Cheung V, Cheung C, Chua SE, Murphy DG, Suckling J, et al. Mapping brain structure in attention deficit-hyperactivity disorder: a voxel-based MRI study of regional grey and white matter volume. Psychiatry Research: Neuroimaging. 2007;154(2):171-80.
42. Frodl T, Skokauskas N. Meta-analysis of structural MRI studies in children and adults with attention deficit hyperactivity disorder indicates treatment effects. Acta Psychiatrica Scandinavica. 2012;125(2):114-26.
43. Ellison-Wright I, Ellison-Wright Z, Bullmore E. Structural brain change in attention deficit hyperactivity disorder identified by meta-analysis. BMC psychiatry. 2008;8(1):51.
44. Nakao T, Radua J, Rubia K, Mataix-Cols D. Gray matter volume abnormalities in ADHD: voxel-based meta-analysis exploring the effects of age and stimulant medication. American Journal of Psychiatry. 2011;168(11):1154-63.
45. Castellanos FX, Tannock R. Neuroscience of attention-deficit/hyperactivity disorder: the search for endophenotypes. Nature Reviews Neuroscience. 2002;3(8):617.
46. Shaw P, Gilliam M, Liverpool M, Weddle C, Malek M, Sharp W, et al. Cortical development in typically developing children with symptoms of hyperactivity and impulsivity: support for a dimensional view of attention deficit hyperactivity disorder. American Journal of Psychiatry. 2011;168(2):143-51.
47. Shaw P, Malek M, Watson B, Sharp W, Evans A, Greenstein D. Development of cortical surface area and gyrification in attention-deficit/hyperactivity disorder. Biological psychiatry. 2012;72(3):191-7.
48. Rubia K, Alegria A, Brinson H. Imaging the ADHD brain: disorder-specificity, medication effects and clinical translation. Expert review of neurotherapeutics. 2014;14(5):519-38.
49. Hart H, Radua J, Mataix-Cols D, Rubia K. Meta-analysis of fMRI studies of timing in attention-deficit hyperactivity disorder (ADHD). Neuroscience & Biobehavioral Reviews. 2012;36(10):2248-56.
50. Cortese SJEjopn. The neurobiology and genetics of attention-deficit/hyperactivity disorder (ADHD): what every clinician should know. 2012;16(5):422-33.
51. Nigg JT. What causes ADHD?: Understanding what goes wrong and why: Guilford Press; 2006.
52. Mash EJ, Barkley RA. Child psychopathology: Guilford Publications; 2014.
53. Lezak MD, Howieson DB, Loring DW, Fischer JS. Neuropsychological assessment: Oxford University Press, USA; 2004.
54. Alvarez JA, Emory E. Executive function and the frontal lobes: a meta-analytic review. Neuropsychology review. 2006;16(1):17-42.
55. Araujo Jiménez EA, Jané-Ballabriga M, Bonillo Martin A, Capdevilla i Brophy C. Executive function deficits and symptoms of disruptive behaviour disorders in preschool children. Universitas psychologica. 2014;13(4):1267-77.
56. Barkley RA. Behavioral inhibition, sustained attention, and executive functions: constructing a unifying theory of ADHD. Psychological bulletin. 1997;121(1):65.
57. Nigg J. Attention-deficit hyperactivity disorder: In Mash EJ, Barkley RA (editors). Child Psychopathology. New York: The Guildford Press; 2014.

58. Shimoni Ma, Engel-Yeger B, Tirosh E. Executive dysfunctions among boys with Attention Deficit Hyperactivity Disorder (ADHD): Performance-based test and parents report. Research in developmental disabilities. 2012;33(3):858-65.
59. Law M, Baptiste S, Mills J. Client-centred practice: What does it mean and does it make a difference? Canadian journal of occupational therapy. 1995;62(5):250-7.
60. Woodside JM, Rosenbaum PL, King SM, King GA. Family-centered service: developing and validating a self-assessment tool for pediatric service providers. Children's health care. 2001;30(3):237-52.
61. Cernich AN, Brennana DM, Barker LM, Bleiberg J. Sources of error in computerized neuropsychological assessment. Archives of Clinical Neuropsychology. 2007;22(Suppl_1):S39-S48.
62. Isquith PK, Crawford JS, Espy KA, Gioia GA. Assessment of executive function in preschool-aged children. Mental retardation and developmental disabilities research reviews. 2005;11(3):209-15.
63. Brocki K, Fan J, Fossella J. Placing Neuroanatomical Models of Executive Function in a Developmental Context Imaging and Imaging–Genetic Strategies. Annals of the New York Academy of Sciences. 2008;1129:246.
64. Espy KA, Sheffield TD, Wiebe SA, Clark CA, Moehr MJ. Executive control and dimensions of problem behaviors in preschool children. Journal of Child Psychology and Psychiatry. 2011;52(1):33-46.
65. Garon N, Bryson SE, Smith IM. Executive function in preschoolers: a review using an integrative framework. Psychological bulletin. 2008;134(1):31.
66. Best JR, Miller PH. A developmental perspective on executive function. Child development. 2010;81(6):1641-60.
67. Senn TE, Espy KA, Kaufmann PM. Using path analysis to understand executive function organization in preschool children. Developmental neuropsychology. 2004;26(1):445-64.
68. Sonuga-Barke EJ, Dalen L, Daley D, Remington B. Are planning, working memory, and inhibition associated with individual differences in preschool ADHD symptoms? Developmental neuropsychology. 2002;21(3):255-72.
69. Byrne JM, Bawden HN, Beattie TL, DeWolfe NA. Preschoolers classified as having attention-deficit hyperactivity disorder (ADHD): DSM-IV symptom endorsement pattern. Journal of Child Neurology. 2000;15(8):533-8.
70. Willcutt EG, Doyle AE, Nigg JT, Faraone SV, Pennington BF. Validity of the executive function theory of attention-deficit/hyperactivity disorder: a meta-analytic review. Biological psychiatry. 2005;57(11):1336-46.
71. Schreiber JE, Possin KL, Girard JM, Rey-Casserly C. Executive function in children with attention deficit/hyperactivity disorder: The NIH EXAMINER battery. Journal of the International Neuropsychological Society. 2014;20(1):41-51.
72. McBURNETT K, Pfiffner LJ, Willcutt E, Tamm L, Lerner M, Ottolini YL, et al. Experimental cross-validation of DSM-IV types of attention-deficit/hyperactivity disorder. Journal of the American Academy of Child & Adolescent Psychiatry. 1999;38(1):17-24.
73. Wolraich ML, Wibbelsman CJ, Brown TE, Evans SW, Gotlieb EM, Knight JR, et al. Attention-deficit/hyperactivity disorder among adolescents: a review of the diagnosis, treatment, and clinical implications. Pediatrics. 2005;115(6):1734-46.
74. Nigg JT, Blaskey LG, Huang-Pollock CL, Rappley MD. Neuropsychological executive functions and DSM-IV ADHD subtypes. Journal of the American Academy of Child & Adolescent Psychiatry. 2002;41(1):59-66.
75. O'Driscoll GA, Dépatie L, Holahan A-LV, Savion-Lemieux T, Barr RG, Jolicoeur C, et al. Executive functions and methylphenidate response in subtypes of attention-deficit/hyperactivity disorder. Biological psychiatry. 2005;57(11):1452-60.
76. Schwenck C, Schmiedeler S, Zenglein Y, Renner T, Romanos M, Jans T, et al. Reflective and impulsive reactions in ADHD subtypes. ADHD Attention Deficit and Hyperactivity Disorders. 2009;1(1):3-10.
77. Nikolas MA, Nigg JT. Neuropsychological performance and attention-deficit hyperactivity disorder subtypes and symptom dimensions. Neuropsychology. 2013;27(1):107.
78. Willcutt EG, Nigg JT, Pennington BF, Solanto MV, Rohde LA, Tannock R, et al. Validity of DSM-IV attention deficit/hyperactivity disorder symptom dimensions and subtypes. Journal of abnormal psychology. 2012;121(4):991.
79. Miller M, Ho J, Hinshaw SP. Executive functions in girls with ADHD followed prospectively into young adulthood. Neuropsychology. 2012;26(3):278.
80. Miller M, Nevado-Montenegro AJ, Hinshaw SP. Childhood executive function continues to predict outcomes in young adult females with and without childhood-diagnosed ADHD. Journal of abnormal child psychology. 2012;40(5):657-68.
81. Zappitelli M, Pinto T, Grizenko N. Pre-, peri-, and postnatal trauma in subjects with attention-deficit hyperactivity disorder. The Canadian Journal of Psychiatry. 2001;46(6):542-8.
82. Sciberras E, Mulraney M, Silva D, Coghill D. Prenatal risk factors and the etiology of ADHD—review of existing evidence. Current psychiatry reports. 2017;19(1):1.
83. Szatmari P, Saigal S, Rosenbaum P, Campbell D, King S. Psychiatric disorders at five years among children with birthweights< 1OOOg: A regional perspective. Developmental Medicine & Child Neurology. 1990;32(11):954-62.
84. Güçlü O, Erkıran M. Dikkat eksikliği hiperaktivite bozukluğu tanısı konmuş çocukların ebeveynlerinde psikiyatrik yüklülük. Klinik Psikiyatri Dergisi. 2004;7(1):32-41.
85. Faraone SV, Biederman J. Neurobiology of attention-deficit hyperactivity disorder. Biological psychiatry. 1998;44(10):951-8.
86. Arnold LE, DiSilvestro RA, Bozzolo D, Bozzolo H, Crowl L, Fernandez S, et al. Zinc for attention-deficit/hyperactivity disorder: placebo-controlled double-blind pilot trial alone and combined with amphetamine. Journal of child and adolescent psychopharmacology. 2011;21(1):1-19.

87. McIntosh DE, Mulkins RS, Dean RS. Utilization of maternal perinatal risk indicators in the differential diagnosis of ADHD and UADD children. International Journal of Neuroscience. 1995;81(3-4):35-46.
88. Firestone P, Prabhu AN. Minor physical anomalies and obstetrical complications: their relationship to hyperactive, psychoneurotic, and normal children and their families. Journal of abnormal child psychology. 1983;11(2):207-16.
89. Banerjee TD, Middleton F, Faraone SV. Environmental risk factors for attention-deficit hyperactivity disorder. Acta paediatrica. 2007;96(9):1269-74.
90. Knopik VS, Sparrow EP, Madden PA, Bucholz KK, Hudziak JJ, Reich W, et al. Contributions of parental alcoholism, prenatal substance exposure, and genetic transmission to child ADHD risk: a female twin study. Psychological medicine. 2005;35(5):625-35.
91. Gurevitz M, Geva R, Varon M, Leitner Y. Early markers in infants and toddlers for development of ADHD. Journal of Attention Disorders. 2014;18(1):14-22.
92. McLaughlin KA, Sheridan MA, Winter W, Fox NA, Zeanah CH, Nelson CA. Widespread reductions in cortical thickness following severe early-life deprivation: a neurodevelopmental pathway to attention-deficit/hyperactivity disorder. Biological psychiatry. 2014;76(8):629-38.
93. Özkürkçügil A, Aydemir Ö, Yıldız M, Esen Danacı A, Köroğlu IV E. DSM-IV Eksen I bozuklukları için yapılandırılmış klinik görüşmenin Türkçe'ye uyarlanması ve güvenilirlik çalışması. İlaç ve tedavi dergisi. 1999;12(4):233-6.
94. Rey JM, Omigbodun OO. International dissemination of evidence-based practice, open access and the IACAPAP textbook of child and adolescent mental health. Child and adolescent psychiatry and mental health. 2015;9(1):51.
95. Ghuman JK, Ghuman HS. Pharmacologic Intervention for Attention-Deficit Hyperactivity Disorder in Preschoolers. Pediatric Drugs. 2013;15(1):1-8.
96. Murray DW. Treatment of preschoolers with attention-deficit/hyperactivity disorder. Current psychiatry reports. 2010;12(5):374-81.
97. Barkley RA, Cunningham CE, Gordon M, Faraone SV, Lewandowski L, Murphy KR. ADHD symptoms vs. impairment: revisited. The ADHD Report: Special Issue—Focus on Assessment. 2006;14(2):1-9.
98. Biederman J, Faraone SV, Mick E, Williamson S, Wilens TE, Spencer TJ, et al. Clinical correlates of ADHD in females: findings from a large group of girls ascertained from pediatric and psychiatric referral sources. Journal of the American Academy of Child & Adolescent Psychiatry. 1999;38(8):966-75.
99. Cohen RA, Sparling-Cohen YA, O'Donnell BF. The neuropsychology of attention: Springer; 1993.
100. Cooper-Kahn J, Dietzel LC. Late, lost and unprepared: A parents' guide to helping children with executive functioning: Woodbine House Bethesda, MD; 2008.
101. Spencer TJ, Biederman J, Mick E. Attention-deficit/hyperactivity disorder: diagnosis, lifespan, comorbidities, and neurobiology. Journal of pediatric psychology. 2007;32(6):631-42.
102. Spencer TJ. ADHD and comorbidity in childhood. The Journal of clinical psychiatry. 2006;67:27-31.
103. Biederman J, Faraone S, Milberger S, Guite J, Mick E, Chen L, et al. A prospective 4-year follow-up study of attention-deficit hyperactivity and related disorders. Archives of general psychiatry. 1996;53(5):437-46.
104. Ingram S, Hechtman L, Morgenstern G. Outcome issues in ADHD: Adolescent and adult long-term outcome. Mental retardation and developmental disabilities research reviews. 1999;5(3):243-50.
105. Weiss G, Hechtman L, Milroy T, Perlman T. Psychiatric status of hyperactives as adults: a controlled prospective 15-year follow-up of 63 hyperactive children. Journal of the American Academy of Child Psychiatry. 1985;24(2):211-20.
106. Barkley RA, Anastopoulos AD, Guevremont DC, Fletcher KE. Adolescents with attention deficit hyperactivity disorder: Mother-adolescent interactions, family beliefs and conflicts, and maternal psychopathology. Journal of abnormal child psychology. 1992;20(3):263-88.
107. Harpin VA. The effect of ADHD on the life of an individual, their family, and community from preschool to adult life. Archives of disease in childhood. 2005;90(suppl 1):i2-i7.
108. Hoy E, Weiss G, Minde K, Cohen N. The hyperactive child at adolescence: Cognitive, emotional, and social functioning. Journal of Abnormal Child Psychology. 1978;6(3):311-24.
109. Rokeach A, Wiener J. The romantic relationships of adolescents with ADHD. Journal of attention disorders. 2018;22(1):35-45.
110. Yoshimasu K, Barbaresi WJ, Colligan RC, Voigt RG, Killian JM, Weaver AL, et al. Childhood ADHD is strongly associated with a broad range of psychiatric disorders during adolescence: a population-based birth cohort study. Journal of Child Psychology and Psychiatry. 2012;53(10):1036-43.
111. Milich R, Loney J. The role of hyperactive and aggressive symptomatology in predicting adolescent outcome among hyperactive children. Journal of Pediatric Psychology. 1979;4(2):93-112.
112. Moriyama TS CA, Verin RE, Fuentes J, Polanczyk GW. . . Attention deficit hiperactivity disorder. In: Rey JM, ed IACAPAP e- Text-book of Child and Adolescent Mental Health Geneva: International Association for Child and Adolescent Psychiatry and Allied Professions;. 2012.
113. Pliszka S, Issues AWGoQ. Practice parameter for the assessment and treatment of children and adolescents with attention-deficit/hyperactivity disorder. Journal of the American Academy of Child & Adolescent Psychiatry. 2007;46(7):894-921.
114. RA B. Attention- deficit/ hiperactivity disorder:. A Handbook for Diagnosis and Treatment New York:. 2015;Barkley Guilford Press;.
115. Pliszka SR. Conceptual issues in understanding comorbidity in ADHD. Attention-deficit hyperactivity disorder in adults and children. 2015:63.
116. Spetie L, Arnold E. Attention-Deficit/Hyperactive Disorder. Lewis's Child and Adolescent Psychiatry: A Comprehensive Textbook 4th Edition Philadelphia, PA: Lippincott Williams & Wilkins. 2007:449-50.

117. Biederman J, Newcorn J, Sprich S. Comorbidity of attention deficit hyperactivity disorder. American journal of psychiatry. 1991;148(5):564-77.
118. Jensen CM, Steinhausen H-C. Comorbid mental disorders in children and adolescents with attention-deficit/hyperactivity disorder in a large nationwide study. ADHD Attention Deficit and Hyperactivity Disorders. 2015;7(1):27-38.
119. Ben Amor L, Sikirica V, Cloutier M, Lachaine J, Guerin A, Carter V. Combination and Switching of Stimulants in Children and Adolescents with ADHD in Quebec. J Can Acad Child Adolesc Psychiatry. 2014.
120. Mannuzza S, Klein RG, Bessler A, Malloy P, LaPadula MJAjop. Adult psychiatric status of hyperactive boys grown up. 1998;155(4):493-8.
121. Rasmussen P, Gillberg CJJotAAoC, Psychiatry A. Natural outcome of ADHD with developmental coordination disorder at age 22 years: a controlled, longitudinal, community-based study. 2000;39(11):1424-31.
122. Barkley RA, Murphy KR, Fischer M. ADHD in adults: What the science says: Guilford Press; 2010.
123. Barkley RA. Attention-deficit hyperactivity disorder: A handbook for diagnosis and treatment (3e éd.). New York: Barkley. 2006.