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Milica Pejović Milovančević^{1,2,*}, Roberto Grujičić¹, Sanja Stupar¹, Minja Ninković³

Overcoming traps and challenges in child and adolescent psychiatry

Превазилажење изазова у дечјој и адолесцентној психијатрији

¹University of Belgrade, Faculty of Medicine, Belgrade, Serbia;

²Institute of Mental Health, Belgrade, Serbia;

³Clinic of Neurology and Psychiatry for Children and Youth, Belgrade, Serbia

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***Correspondence to:**

Milica PEJOVIĆ MILOVANČEVIĆ

Palmoćeva 37, Belgrade, Serbia

milica.pejovic@imh.org.rs

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Превазилажење изазова у дечјој и адолесцентној психијатрији

SUMMARY

Appropriate healthcare and psychological support for children and adolescents is essential for the successful development and good mental health. Unfortunately, this is often a neglected element in the healthcare systems around the world. It is known that approximately half of all adult psychiatric disorders start under the age of 14 and that the prevalence of child and adolescent-onset psychiatric conditions is increasing. The real reason for this increase remains unclear but it demands our attention as does the care of affected children, adolescents and their families. Transitions between different age groups need to be made easily navigable for the patients and their families.

Many challenges in child and adolescent psychiatry are present, especially in developing countries such as in Serbia. A possible solution for overcoming these challenges is uniting of child and adolescent professional societies from all over the world. These societies should work together to develop unified strategies for diagnosis, treatment and support of children affected by psychiatric conditions. By working closely with pediatricians, family physicians, psychologists, nurses and other professionals, child and adolescent psychiatry can use knowledge and skills to support practice while teaching other professionals how to optimize the utilization of child and adolescent psychiatry services.

Keywords: Child and adolescent psychiatry; trends; ACE; child abuse and neglect;

САЖЕТАК

Одговарајућа здравствена и психолошка подршка деци и адолесцентима од суштинског је значаја за успешан психосоцијални развој и као и очување менталног здравља. Нажалост, очување менталног здравља деце и младих је често занемарени домен у здравственим системима широм света. Познато је да половина свих психијатријских поремећаја код одраслих почиње пре 14. године и да се преваленција психијатријских стања код детета и адолесцената повећава. Прави разлог овог повећања и даље није у потпуности разјашњен. Без обзира на нејасну етиологију, брига о оболелој деци, адолесцентима и њиховим породицама, треба да представља приоритет у здравственим системима сваке државе.

Глобално постоје многи изазови у дечјој и адолесцентној психијатрији, а су посебно наглашени у земљама у развоју, као што је Србија. Могуће решење за превазилажење ових изазова је удруживање професионалних друштава дечје и адолесцентне психијатрије из целог света. Та друштва би требало да раде заједно на развоју јединствених стратегија за дијагнозу, лечење и подршку деци која болују од развојних и психијатријских стања и поремећаја. Поред овога, кључна ствар за адекватно функционисање и напредовање дечије и адолесцентне психијатрије и блиска интерсекторска сарадња са другим секторима који се баве децом и младима.

Кључне речи: Дечја и адолесцентна психијатрија, трендови, злостављање и занемаривање деце

INTRODUCTION

The early development of children and adolescents and their later transition into adulthood depends on the support and assistance of adults - their parents/caregivers, teachers, healthcare providers, and many others. Appropriate healthcare is essential to the successful development and good mental health. Unfortunately, this is often a neglected element in the healthcare systems around the world. The prevalence of child and adolescent-onset psychiatric conditions is increasing. The real reason for this change is unclear but it demands our attention as does the care of affected children, adolescents and their families.

Many challenges are present; service capacity for children and adolescents is substantially limited by multiple barriers including lack of resources, restrictive access criteria, distance from service providers, etc. As a result, some national studies, like a study conducted in the USA, estimate that approximately 49% of children do not receive professional mental health treatment or counseling (the prevalence ranged from 29.5% to 72.2% in different USA countries) [1]. The lack of trained clinicians, especially in child and adolescent psychiatry is a global phenomenon.

The child and adolescent psychiatry (CAP) is a relatively young and new discipline. With the advancement of clinical knowledge, research, education and professional activities, this field is continually being enriched with a major commitment to the evidence-based practice. Additionally, with efforts of The European Union of Medical Specialists—Child and Adolescent Psychiatry (UEMS–CAP) along with the European Society of Child and Adolescent Psychiatry (ESCAP), the challenges of CAP are recognized widely. Currently there are continuous efforts to overcome them in every aspect of CAP – from enrollment in the training to the implementation of clinical practice [2, 3]. Some of the improvements of UEMS-CAP include the composition of the training manual and a logbook with comprehensive recommendations for the training with the standardized approach to CAP across Europe [3].

Studies have shown a high degree and type (i.e., homotypic and heterotypic) of continuity of psychopathology from childhood to middle adulthood [4,5], and they underscore the need to study psychopathology through a developmental perspective. The progress in CAP is making it increasingly clear that psychiatrists must learn about healthy and pathological development for each individual because the development does not stop because an individual reaches the legal age of adulthood [3]. We are facing a public health crisis with a profoundly limited capacity to meet these significant health care needs of our youth. The best way to prove

the need for better recognition of CAP is to analyze the epidemiology of the common mental health issue of children and adolescents.

EPIDEMIOLOGY

Young people under 25 years of age make up approximately 43% of the world's population [6]. The important health issues and risk factors for disease in later life emerge in those years, and their contribution to the global burden of disease are relevant [7]. Among the eight main causes of DALYs in these age groups, the majority were psychiatric and behavioral in nature. Furthermore, cross-sectional studies have shown that exposure to risk-factors (e.g., parental mental illness, child abuse, neglect) in childhood and adolescence increases the probability of developing mental health disorders in adulthood [8].

An increasing number of children that need psychiatric interventions and treatment have been of main interest to many researchers across the world for the last decade [9]. In terms of trends of psychiatric disorders in childhood, it has been believed that a trend of underdiagnosis and undertreatment constantly high in the last decades [10]. However, there is the other side of the same story. Some researchers believe that an increase in the prevalence of psychiatric disorders in childhood is mainly due to overdiagnosis and overtreatment [11].

There is gathered evidence that the trends of certain childhood psychiatric disorders tend to increase in adolescence such as depression, anxiety disorders (panic disorder and agoraphobia) and substance use disorder [12]. Some of these disorders (panic disorders, agoraphobia and substance use disorders) continue to increase into adulthood. On the other hand some childhood disorders (attention-deficit hyperactivity disorder (ADHD) and separation anxiety disorders) tend to decrease across time [12]. These data again highlight the need for improved mental health care in this “transition to adult years”.

DEPRESSIVE DISORDERS

Depression in young children is a relatively rare disorder, but when it occurs in such young age it can cause severe symptomatology and possibly fatal consequences. The prevalence rates of depression in youth range greatly in different communities. For example, according to the review of literature conducted by Merikangas et al. [13], the rates of any depressive disorder (DD) ranges from 0.9% to 3.4%; while for the major depressive disorder (MDD) ranges from 0.6% in Great Britain to 3% in Puerto Rico. Among preadolescents, researchers report no gender differences in rates of depression. However, from the beginning of adolescence, the prevalence of depression is greater among females than among males with differences persisting into the middle adulthood [13]. This gender difference is controversial in the literature with a variety of proposed mechanisms. It is mostly attributed to the impact of hormonal and neurodevelopmental patterns that occur during puberty [14] and greater exposure or sensitivity to psychosocial stress in adolescent girls [15]. A number of longitudinal studies from different countries noted that depression in children (MDD and DD) occurs in between 11 and 14 years of age [13]. The results show that preschool-onset depression emerged as a robust predictor of DSM-5 MDD in later childhood, even after accounting for the effect of maternal depression and other risk factors. Preschool-onset conduct disorder also predicted DSM-5 MDD in later childhood, but this association was partially mediated by maternal non-support, reducing the effect of preschool conduct disorder in predicting DSM depression by 21% [16]. Predictors of depressive symptoms may differ before and after the initial onset of major depression due to stress sensitization [17]. Every clinician should bare in mind that symptoms of depression in young people can differ significantly in comparison to adults. For example, melancholic and psychotic symptoms occur less frequently in children [18]. The most common symptoms of depression in children of preschool age are behavioral problems and somatic complaints, while school-age children often present with an increase in irritability and

impulsivity, a failure to properly function in school and among their peers, low self-esteem, guilt, increased boredom, etc [19].

BIPOLAR DISORDERS

Diagnosing pediatric bipolar disorder (PBD) is challenging due to the wide range of symptom expression, differences when compared to adults with the same disorder, presence of comorbid disorders, and diagnostic criteria that may not be developmentally sensitive [20]. Until the last decade of the 20th century, PBD was rarely diagnosed. In that period researchers highlighted the fact that presentation of PBD differs significantly from adults. From that point on, PBD was much more frequently diagnosed; for example, the study conducted by Blader et al. [20] reported a significant linear increase of PBD diagnosis in discharged pediatric patients in the US from 1996 (1.3 per 10,000) to 2004 (7.3/10,000) [21]. This increase raised concerns that PBD is overdiagnosed.

The current reported prevalence of mania, hypomania, and bipolar disorder in population-based studies of youth range from 1% to 3% in children and adolescents [22]. The results of most community surveys find nearly equal rates of bipolar disorder in boys and girls. The prospective studies found that the incidence of bipolar disorder peaks at age 14 in both males and females and decreases gradually thereafter [13].

ANXIETY DISORDERS

Similar to the community studies of adults, anxiety disorders are also quite prevalent in the general population of children and adolescents. According to national-level survey conducted in the US, approximately 7.1% of children aged 3–17 years (about 4.4 million) have diagnosed anxiety [23].

Although there is substantial variation across studies, the results of the literature review reveals that the onset of any anxiety disorder is usually in youth [24]. Further, differential peak periods of onset of specific subtypes of anxiety. The specific phobias and separation anxiety occur the earliest, in middle childhood, while other types (agoraphobia, panic disorders and generalized anxiety disorder) occur in adolescence with further incidence increase in early adulthood [24]. The Beesdo's review also points out that all anxiety disorders are more frequent in females with sex differences noticeable as early as childhood [24]. Although this is a well-established difference confirmed by a number of studies, some researchers warn that this difference is often small or nonexistent [25].

PSYCHOTIC SYMPTOMS AND DISORDERS

The population data suggests that the prevalence of subclinical psychotic symptoms in general population is 5% (many times greater than the actual diagnosis of a psychotic disorder) [26]. There is an increasing body of evidence that suggests that a large portion of young people experience psychotic symptoms and that these numbers can even be greater than that in adults; the rates vary from 9–14% in interview-based research to the rates greater than 25% in some studies using self-report questionnaires [27]. These symptoms have been recognized and significant since a cohort study reported that adolescents who experience these phenomena have more frequent suicide attempts at follow ups [28].

The effective pharmacotherapy of these disorders in children remain the major obstacle for clinicians since this still remains the area of active research. A large portion of the antipsychotic treatment has been based on the research on adult population, however there are finished and ongoing clinical trials that show promising results [27].

ADHD

ADHD (attention deficit hyperactivity disorders) is one of the most common psychiatric disorders that occurs in childhood [29]. Although the point prevalence rates of ADHD have varied from 5% to 12%, the median prevalence of ADHD in a recent meta-analysis conducted in China was 6.26% (5.36–7.22%) [30]. A higher prevalence of ADHD in boys been well-established. Rates of ADHD consistently show a male preponderance of ADHD [29]. Researchers noted many risk factors related to the occurrence of ADHD. Among the most common factors are genetics, prematurity and exposure to lead, cigarettes and alcohol in pregnancy [31].

CONDUCT AND OPPOSITIONAL DISORDER

Disruptive behavior disorders include two similar disorders: oppositional defiant disorder (ODD) and a conduct disorder (CD). The estimated prevalence of conduct disorder (CD) is 3.5 % (CI 2.7–4.7 %), and the prevalence of oppositional defiant disorder (ODD) was estimated to be 2.8 % (CI 2.1–3.7 percent) [32]. Similar to ADHD, CD is also more prevalent in boys than girls, while the male:female prevalence ratio for ODD was found to be 1.59:1 [33, 34]. Age of onset of disruptive behavior disorders appears to be an important predictor of outcome, those with earlier onset experience a longer duration of ODD and negative outcomes [35]. Community studies of youth have shown a high degree of co-occurrence of CD and ADHD, impulse control disorders, substance abuse and major mood disorders (bipolar disorders); and a number of comorbid conditions predicted a slower recovery from these disorders and more negative outcomes [36, 37]. Likewise, there is also an association between the presence disruptive behavior disorders with mood and anxiety disorders.

EATING DISORDERS

A recent systematic review by Galmiche et al. [38] reported that the weighted ranges of lifetime prevalence for eating disorders (ED) were 8.4% (3.3–18.6%) for women and 2.2% (0.8–6.5%) for men, with the highest prevalence in America (4.6%), followed by Asia (3.5%) and Europe (2.2%). AN has a mortality rate of at least 5% to 6%, the highest mortality rate of any psychiatric illness [39]. The lifetime prevalence of bulimia nervosa (BN) is higher at between 0.9% and 3% [40], with an older age of onset of 16 to 17 years. Although female patients account for most ED diagnoses, males have accounted for 5–10% of ED cases over the past years, with some community-based research reporting up to 25% of cases being male [41].

NEURODEVELOPMENTAL DISORDERS/AUTISM SPECTRUM DISORDER

The dramatical increase in the prevalence of neurodevelopmental disorders, especially Autism Spectrum Disorders (ASD), is generally accepted. Studies in Asia, Europe, and North America have identified individuals with ASD with an average prevalence of between 1% and 2% [42]. In other words, about 1 in 54 children has been identified with ASD according to estimates from CDC's Autism and Developmental Disabilities Monitoring (ADDM) Network [43]. Epidemiological data show that the incidence of ASD is higher among boys than girls with ratios around 4:1 [44]. Furthermore, it has been shown that sex doesn't moderate the intensity of the core ASD symptoms, although females tend to be more functional in everyday life [45]. The exact cause of ASD is still unknown, but literature data indicates that there is a strong genetic effect often with the impact of environmental factors (e.g., prenatal and postnatal factors) and their interactions in persons at risk [46].

Bosl et al. [47] recently provided initial evidence for a role for connectivity in early development. The authors contrasted EEG complexity in infants at risk for ASD with normal

controls, revealing reduced complexity in infants-at-risk. Though this study suggests the role of connectivity in early development is associated with ASD risk, the ultimate diagnostic outcome was not available for infants in this study, so it is unclear whether connectivity has any predictive validity for autism-risk [47]. Recent work has focused upon EEG complexity as a marker of connectivity in ASD [48].

CHALLENGES AHEAD FOR CHILD AND ADOLESCENT PSYCHIATRY

Number of child and adolescent psychiatrists

Among the world's 7 billion population, almost half of the citizens are under 25 years of age (with 1.8 billion between the ages of 10 and 24) [6]. With only about 20,000 child and adolescent psychiatrists worldwide this means that there is one child and adolescent psychiatrist for every 300,000 youth of which about 60,000 will have an active psychiatric disorder [49]. The geographic maldistribution of child and adolescent psychiatrists in favor of large urban areas leaves a great many youth unserved or at impossible distances from psychiatric care. As a consequence, if the clinicians are not there to identify psychiatric illness, then "it does not exist" and remains an invisible problem for the healthcare systems and policymakers [3]. Currently, in Serbia there are 33 CAP specialists (residents of Republic of Serbia), mostly employed in public sector. The current number of staff in CAP is not sufficient for the needs of children living in our country.

What keeps child and adolescent psychiatry so small and, to a large extent, irrelevant?

1. Recruiting: CAP rarely plays a central role in medical education curriculum and policy. The same applies to healthcare planning and policy. Because there are so few child and adolescent psychiatrist, they rarely participate in the selection of students entering medical school and

advanced training programs and they are generally not readily available to serve as “role models” and mentors for developing physicians.

2. Training: In the last two decades, there were a few Europe-based studies that focused on all aspects of CAP training. These studies had shown that the CAP training programs vary greatly across European countries [3]. This diversity was recognized by UEMS-CAP and ESCAP which lead to the development of programs, curricula, and guidebooks aiming to achieve harmonization and homogeneity in the training programs [2]. The effects of this initiative were presented in the recent findings from the study conducted in 2019, which revealed improvements and unexpected homogeneity in the training structure across countries but also recognized some of the challenges that need to be refined with in the future [3].

3. Practice: The practice of CAP is often isolated from the rest of medicine. Many practitioners are in private office practices and rarely have professional interactions with other physicians. Frequently colleagues from different specialties are replacing child and adolescent psychiatrists with social workers, psychologists, advanced practice nurses, pediatricians, neurologists, developmental pediatricians, and all manner of other “mental health professionals” who either meet their needs or allow them to say that they have “mental health services”. Even when they are recognized as healthcare providers, their resources (e.g., medication availability) are often limited [50].

4. Research: Child and Adolescent Psychiatry training programs give short shrift to research training, and there are few provisions for research career development for child and adolescent psychiatrists. As a result, there are remarkably few of them dedicated to full – or even half-time – research careers.

5. Economics: Because it takes long to prepare a Child and Adolescent Psychiatrist for practice and the liabilities and responsibilities are so great, CAP services are more expensive than other “mental health” providers of care.

Solutions to overcome problems in organization of child and adolescent psychiatry

The situation leads to two options: (1) continue down the same path or (2) determine what can and will be done. What is needed is to re-define discipline, to clearly distinguish CAP from the other “mental health providers.” CAP are physicians who specialize in the medical specialty of CAP and who diagnose and treat real disorders of developmental psychopathology in real patients by using real evidence-based, scientific practice. CAP should be capable of helping patients and colleagues in emergencies; manage privacy concerns and communicate frequently and effectively with colleagues; use technology (telemedicine, computer/app-based interventions) without compromising quality standards; and seek feedback from colleagues about what helps and what doesn't.

CONCLUSION

The CAP as a separate specialty is gaining recognition and establishment among other medical disciplines worldwide. In the South-Eastern Europe region, the national and international CAP societies are working closely to develop unified strategies for training programs, research, and clinical practice in this field. These unified actions are already showing promising results in all aspects of CAP. On the other hand, by working closely with other professionals (e.g., pediatricians, family physicians, psychologists), CAP professionals can use knowledge and skills to support practice while teaching other professionals how to optimize utilization of CAP services.

The CAP professionals should advocate for practice primary prevention in psychiatry, ranging from the provision of iodine to women of reproductive age to the education of parents about optimum child-rearing practices. They should make sure that they are keeping the knowledge of general medicine to be able to deal with comorbid physical illness in their patients and at the same time to contribute to the image of psychiatry as a medical discipline.

CAP professionals can “see and be seen” through greater activity in professional organizations outside of CAP and by speaking loudly and clearly about the needs of children from a very unique developmental perspective.

One size does not fit all in the sense of cultural relativism, and in any service planning and delivery, we must take into account cultural variations. CAP professionals should not blindly follow one model, but modify it according to cultural norms and resources. Psychiatry is at that stage where a lot of exciting developments are emerging, and CAP is the best example of such a development.

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REFERENCES

1. Whitney DG, Peterson MD. US National and State-Level Prevalence of Mental Health Disorders and Disparities of Mental Health Care Use in Children. *JAMA pediatrics*. 2019;173(4):389–91. <https://jamanetwork.com/journals/jamapediatrics/fullarticle/2724377>
2. The Child and Adolescent section of the Union European Medical Specialists (UEMS-CAP). Training in CAP. Web site: <http://www.uemscap.eu/training> Accessed 9 Feb 2021.
3. Gregoric Kumperscak H, Clausen C, Anagnostopoulos D, Barac Otasevic Z, Boricevic Marsanic V, et al. Child and adolescent psychiatry training and mental health care in Southeast Europe. *Eur Child Adolesc Psychiatry*. 2020 Jan;29(1):29–39. <https://pubmed.ncbi.nlm.nih.gov/31227911/>
4. Reef J, Diamantopoulou S, Van Meurs I, Verhulst F, Van Der Ende J. Child to adult continuities of psychopathology: a 24-year follow-up. *Acta Psychiatrica Scandinavica*. 2009;120(3):230–8. <https://www.ncbi.nlm.nih.gov/pubmed/19522882>
5. Grujicic R, Pejovic-Milovancevic M, Miljevic C. Depresija od detinjstva do odraslog doba - šta je izaziva i kako opstaje? *Engrami*. 2018;40(2):40–53. <https://scindeks-clanci.ceon.rs/data/pdf/0351-2665/2018/0351-26651802040G.pdf>
6. UNFPA. State of World Population 2011. People and Possibilities in a World of 7 Billion. [Internet]. 2011. Available from: <https://www.unfpa.org/publications/state-world-population-2011>
7. Baranne ML, Falissard B. Global burden of mental disorders among children aged 5–14 years. *Child Adolesc Psychiatry Ment Health*. 2018;12:19–30. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5896103/>
8. Tošković Oliver, Milovančević MP, Kostić M, Lazarević L, Mandić Maravić V, Mitković Vončina M, et al. Adverse childhood experiences (ACE) study. Research on Adverse Childhood Experiences in Serbia. 2019. Available from: https://www.unicef.org/serbia/sites/unicef.org.serbia/files/2019-05/Adverse_Childhood_Experiences_study.pdf
9. Achenbach TM, Rescorla LA, Ivanova MY. International epidemiology of child and adolescent psychopathology I: diagnoses, dimensions, and conceptual issues. *Journal of the American Academy of Child and Adolescent Psychiatry*. 2012;51(12):1261–72. <https://www.ncbi.nlm.nih.gov/pubmed/23200283>
10. Merikangas KR, He JP, Rapoport J, Vitiello B, Olfson M. Medication use in US youth with mental disorders. *JAMA pediatrics*. 2013;167(2):141–8. <https://www.ncbi.nlm.nih.gov/pubmed/23403911>
11. Merten EC, Cwik JC, Margraf J, Schneider S. Overdiagnosis of mental disorders in children and adolescents (in developed countries). *Child Adolesc Psychiatry Ment Health*. 2017;11(1):5. <https://pubmed.ncbi.nlm.nih.gov/28105068/>
12. Costello EJ, Copeland W, Angold A. Trends in psychopathology across the adolescent years: what changes when children become adolescents, and when adolescents become adults? *Journal of child psychology and psychiatry, and allied disciplines*. 2011;52(10):1015–25. <https://www.ncbi.nlm.nih.gov/pubmed/21815892>
13. Merikangas KR, Nakamura EF, Kessler RC. Epidemiology of mental disorders in children and adolescents. *Dialogues Clin Neurosci*. 2009;11(1):7–20. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2807642/>
14. Salk RH, Hyde JS, Abramson LY. Gender differences in depression in representative national samples: Meta-analyses of diagnoses and symptoms. *Psychological bulletin*. 2017;143(8):783–822. <https://www.ncbi.nlm.nih.gov/pubmed/28447828>
15. Maughan B, Collishaw S, Stringaris A. Depression in childhood and adolescence. *J Can Acad Child Adolesc Psychiatry*. 2013;22(1):35–40. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/23390431>
16. Luby JL, Gaffrey MS, Tillman R, April LM, Belden AC. Trajectories of preschool disorders to full DSM depression at school age and early adolescence: continuity of preschool depression. *The American journal of psychiatry*. 2014;171(7):768–76. <https://www.ncbi.nlm.nih.gov/pubmed/24700355>
17. Hankin BL, Young JF, Abela JR, Smolen A, Jenness JL, Gulley LD, et al. Depression from childhood into late adolescence: Influence of gender, development, genetic susceptibility, and peer stress. *Journal of abnormal psychology*. 2015;124(4):803–16. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4327904/>
18. Rao U, Chen L-A. Characteristics, correlates, and outcomes of childhood and adolescent depressive disorders. *Dialogues Clin Neurosci*. 2009;11(1):45–62. <https://pubmed.ncbi.nlm.nih.gov/19432387>

19. Mullen S. Major depressive disorder in children and adolescents. *Ment Health Clin*. 2018;8(6):275–83. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6213890/>
20. Washburn JJ, West AE, Heil JA. Treatment of Pediatric Bipolar Disorder: A Review. *Minerva Psichiatr*. 2011;52(1):21–35. <https://pubmed.ncbi.nlm.nih.gov/21822352>
21. Blader JC, Carlson GA. Increased rates of bipolar disorder diagnoses among U.S. child, adolescent, and adult inpatients, 1996–2004. *Biol Psychiatry*. 2007;62(2):107–14. <https://pubmed.ncbi.nlm.nih.gov/17306773>
22. Birmaher B. Bipolar disorder in children and adolescents. *Child Adolesc Ment Health*. 2013;18(3):10.1111/camh.12021. <https://pubmed.ncbi.nlm.nih.gov/24273457>
23. Ghandour RM, Sherman LJ, Vladutiu CJ, Ali MM, Lynch SE, Bitsko RH, et al. Prevalence and Treatment of Depression, Anxiety, and Conduct Problems in US Children. *J Pediatr*. 2019;206:256–267.e3. <https://pubmed.ncbi.nlm.nih.gov/30322701/>
24. Beesdo K, Knappe S, Pine DS. Anxiety and anxiety disorders in children and adolescents: developmental issues and implications for DSM-V. *Psychiatr Clin North Am*. 2009;32(3):483–524. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3018839/>
25. Feng X, Shaw DS, Silk JS. Developmental trajectories of anxiety symptoms among boys across early and middle childhood. *J Abnorm Psychol*. 2008;117(1):32–47. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2711562/>
26. van Os J, Linscott RJ, Myin-Germeys I, Delespaul P, Krabbendam L. A systematic review and meta-analysis of the psychosis continuum: evidence for a psychosis proneness-persistence-impairment model of psychotic disorder. *Psychol Med*. 2009;39(2):179–95. <https://pubmed.ncbi.nlm.nih.gov/18606047/>
27. Stevens JR, Prince JB, Prager LM, Stern TA. Psychotic disorders in children and adolescents: a primer on contemporary evaluation and management. *Prim care companion CNS Disord*. 2014;16(2):PCC.13f01514. <https://pubmed.ncbi.nlm.nih.gov/25133052>
28. Kelleher I, Corcoran P, Keeley H, Wigman JTW, Devlin N, Ramsay H, et al. Psychotic symptoms and population risk for suicide attempt: a prospective cohort study. *JAMA psychiatry*. 2013;70(9):940–8. <https://pubmed.ncbi.nlm.nih.gov/23863946/>
29. Wang T, Liu K, Li Z, Xu Y, Liu Y, Shi W, et al. Prevalence of attention deficit/hyperactivity disorder among children and adolescents in China: a systematic review and meta-analysis. *BMC Psychiatry*. 2017;17(1):32. <https://pubmed.ncbi.nlm.nih.gov/28103833>
30. Ramtekkar UP, Reiersen AM, Todorov AA, Todd RD. Sex and age differences in attention-deficit/hyperactivity disorder symptoms and diagnoses: implications for DSM-V and ICD-11. *J Am Acad Child Adolesc Psychiatry*. 2010;49(3):217–28.e283. <https://pubmed.ncbi.nlm.nih.gov/20410711>
31. Sciberras E, Mulraney M, Silva D, Coghill D. Prenatal Risk Factors and the Etiology of ADHD-Review of Existing Evidence. *Curr Psychiatry Rep*. 2017;19(1):1. <https://pubmed.ncbi.nlm.nih.gov/28091799/>
32. National Research Council (US) and Institute of Medicine (US) Committee on the Prevention of Mental Disorders and Substance Abuse Among Children, Youth, and Young Adults: Research Advances and Promising Interventions; O’Connell ME, Boat T, Warner KE, edit. <https://www.ncbi.nlm.nih.gov/books/NBK32781/>
33. Demmer DH, Hooley M, Sheen J, McGillivray JA, Lum JAG. Sex Differences in the Prevalence of Oppositional Defiant Disorder During Middle Childhood: a Meta-Analysis. *J Abnorm Child Psychol*. 2017;45(2):313–25. <https://pubmed.ncbi.nlm.nih.gov/27282758/>
34. Brooks Holliday S, Ewing BA, Storholm ED, Parast L, D’Amico EJ. Gender differences in the association between conduct disorder and risky sexual behavior. *J Adolesc*. 2017;02/06. 2017;56:75–83. <https://pubmed.ncbi.nlm.nih.gov/28182979>
35. Nock MK, Kazdin AE, Hiripi E, Kessler RC. Lifetime prevalence, correlates, and persistence of oppositional defiant disorder: results from the National Comorbidity Survey Replication. *J Child Psychol Psychiatry*. 2007;48(7):703–13. <https://pubmed.ncbi.nlm.nih.gov/17593151>
36. Connor DF, Steeber J, McBurnett K. A review of attention-deficit/hyperactivity disorder complicated by symptoms of oppositional defiant disorder or conduct disorder. *J Dev Behav Pediatr*. 2010;31(5):427–40. <https://pubmed.ncbi.nlm.nih.gov/20535081>

37. Berkout O V, Young JN, Gross AM. Mean girls and bad boys: Recent research on gender differences in conduct disorder. *Aggress Violent Behav.* 2011;16(6):503–11. <http://www.sciencedirect.com/science/article/pii/S1359178911000784>
38. Galmiche M, Déchelotte P, Lambert G, Tavolacci M. Prevalence of eating disorders over the 2000–2018 period: a systematic literature review. *Am J Clin Nutr.* 2019;109:1402–13. https://www.researchgate.net/publication/333377747_Prevalence_of_eating_disorders_over_the_2000-2018_period_a_systematic_literature_review
39. Fichter MM, Quadflieg N. Mortality in eating disorders - results of a large prospective clinical longitudinal study. *Int J Eat Disord.* 2016;49(4):391–401. <https://pubmed.ncbi.nlm.nih.gov/26767344/>
40. Hoste RR, Labuschagne Z, Le Grange D. Adolescent bulimia nervosa. *Curr Psychiatry Rep.* 2012;14(4):391–7. <https://pubmed.ncbi.nlm.nih.gov/22614677/>
41. Sweeting H, Walker L, MacLean A, Patterson C, Räisänen U, Hunt K. Prevalence of eating disorders in males: a review of rates reported in academic research and UK mass media. *Int J Mens Health.* 2015;14(2):10.3149/jmh.1402.86. <https://pubmed.ncbi.nlm.nih.gov/26290657/>
42. CDC. Data and Statistics. Autism Spectrum Disorder. Resource Document. [Last accessed on 18/07/2020]. Available from: <http://www.cdc.gov/ncbddd/autism/data.html>
43. Baio J, Wiggins L, Christensen DL, Maenner MJ, Daniels J, Warren Z, et al. Prevalence of Autism Spectrum Disorder Among Children Aged 8 Years - Autism and Developmental Disabilities Monitoring Network, 11 Sites, United States, 2014. *Morb Mortal Wkly report Surveill Summ.* 2018;67(6):1–23. <https://pubmed.ncbi.nlm.nih.gov/29701730/>
44. Baird G, Simonoff E, Pickles A, Chandler S, Loucas T, Meldrum D, et al. Prevalence of disorders of the autism spectrum in a population cohort of children in South Thames: the Special Needs and Autism Project (SNAP). *Lancet.* 2006;368(9531):210–5. <https://pubmed.ncbi.nlm.nih.gov/16844490/>
45. Mandic-Maravic V, Pejovic-Milovancevic M, Mitkovic-Voncina M, Kostic M, Aleksic-Hil O, Radosavljev-Kircanski J, et al. Sex differences in autism spectrum disorders: does sex moderate the pathway from clinical symptoms to adaptive behavior? *Sci rep.* 2015;5:10418. <https://www.ncbi.nlm.nih.gov/pubmed/25988942>
46. Mandic-Maravic V, Mitkovic-Voncina M, Pljesa-Ercegovac M, Savic-Radojevic A, Djordjevic M, Pekmezovic T, et al. Autism Spectrum Disorders and Perinatal Complications—Is Oxidative Stress the Connection? *Front Psychiatry.* 2019;10(675). <https://www.ncbi.nlm.nih.gov/pubmed/31681027>
47. Bosl W, Tierney A, Tager-Flusberg H, Nelson C. EEG complexity as a biomarker for autism spectrum disorder risk. *BMC Med.* 2011;9:18. <https://pubmed.ncbi.nlm.nih.gov/21342500/>
48. Milovanovic M, Radivojevic V, Radosavljev-Kircanski J, Grujicic R, Toskovic O, Aleksic-Hil O, et al. Epilepsy and interictal epileptiform activity in patients with autism spectrum disorders. *Epilepsy behav.* 2019;92:45–52 <https://www.ncbi.nlm.nih.gov/pubmed/30611007>
49. Clausen CE, Bazaid K, Azeem MW, Abdelrahim F, Elgawad AAA, Alamiri B, et al. Child and adolescent psychiatry training and services in the Middle East region: a current status assessment. *Eur Child Adolesc Psychiatry.* 2020;29(1):51–61. <https://link.springer.com/article/10.1007/s00787-019-01360-2>
50. Božić B, Stupar S, Stupar D, Babić U, Bajčetić M. Availability of pediatric-evaluated formulations in Serbia. *Indian J Pharmacol.* 2017;49(2):189–193. doi:10.4103/ijp.IJP_66_16 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5497442/>