

Knowledge Management Ecosystem Portal (KM-EP) on mental health of adolescents and young adults: Risk factors, disorders, prevention measures and evidence-based interventions

Short version for medical professionals

Disclaimer: We have compiled this information to the best of our knowledge based on current scientific literature (as of May 2026). However, we do not provide diagnosis or treatment recommendations. If you notice any mental health concerns in yourself or in a child or adolescent in your care, please consult a medical doctor.

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Introduction

This Knowledge Management Ecosystem Portal (KM-EP) provides an evidence-based overview of the most common mental and neurodevelopmental disorders in adolescence and young adulthood, including ADHD, anxiety disorders, autism spectrum disorders, depression, eating disorders, gaming disorder, and substance use disorders. It also summarizes key risk factors, diagnostic criteria, prevention strategies, treatment approaches, and the potential of serious gaming for promoting mental health.

Adolescents at risk

Adolescence is the transition from childhood to adulthood and is marked by physical change, identity development, peer orientation, and separation from parental values. During this period, young people are particularly vulnerable to psychological distress.

According to the WHO, one in seven people aged 10–19 is affected by mental illness. Mental disorders often begin in adolescence and may shape later adulthood negatively. The burden of mental disorders rises steadily during childhood and adolescence (WHO, n.d.; Solmi et al., 2022; GBD, 2019).

The most impactful risk factors for adolescent mental health include problematic use and passive consumption of social media, sleep disturbances, adverse childhood experiences, and family

conflicts, low parental socioeconomic status. Prosocial behaviour and parental monitoring are protective (Agyapong-Opoku, 2025; Grüning Parache et al., 2023; Hill et al., 2025).

The most common mental and neurodevelopmental disorders in adolescence

ADHD

Diagnostic criteria

According to DSM-5 and ICD-11, ADHD is defined by a persistent pattern of inattention and/or hyperactivity–impulsivity with symptoms present before age 12 and in at least two settings. Symptoms must cause clinically significant impairment and not be better explained by another disorder. The DSM-5 distinguishes between predominantly inattentive, predominantly hyperactive/impulsive, and combined presentations (Eom & Kim, 2024; Warren & Arayamparambil, 2023).

The 2019 American Academy of Pediatrics guideline recommends a structured diagnostic process. This includes initial evaluation when academic or behavioural problems and ADHD symptoms are present, a thorough history and diagnostic interview, reports from school and other sources, use of DSM-5–based rating scales, confirmation of criteria across settings, exclusion of alternative explanations, screening for comorbidities, and referral if specialist care is needed (Wolraich et al., 2019).

Prevention measures

- Screening and monitoring of high-risk children, such as those with strong family history or prematurity, in primary care and school settings (AADPA, 2022)
- Parenting programs that teach positive behaviour management, classroom strategies, and educational support (Shah et al., 2019).

Risk factors

- Genetic and familial loading, prenatal exposure to tobacco, alcohol, or drugs, prematurity or very low birth weight, environmental risks such as lead exposure, brain injury, and psychosocial adversity (Patel et al., 2016).
- High rates of comorbidity with learning disorders, anxiety, depression, and autism spectrum disorder (Eom & Kim, 2024; Ernstmayer et al., 2022).

Treatment approaches

- First-line treatment is multimodal and combines psychoeducation, behavioural interventions, parent training, classroom management, organizational skills training, and, when indicated, stimulant or non-stimulant medication.
- Parenting programs with positive behaviour management and educational support remain important (Eom & Kim, 2023; Jerome & Jerome, 2020, Shah et al. (2019).

Anxiety disorders

Diagnostic criteria

Anxiety disorders involve excessive fear or anxiety that is disproportionate, persistent, difficult to control, and causes significant distress or impairment. They are differentiated by the specific feared situations and associated thoughts or beliefs. Compared to normal developmental fear, they are more intense, longer lasting, and often persist for 6 months or more, though this criterion is applied flexibly in children (APA, 2013; Ernstmayer et al., 2022; Patel et al., 2016).

Prevention measures

- School-based programs teaching emotional literacy, problem solving, and coping skills, alongside anti-bullying and safe-school policies.
- Early identification and support for anxious children, including psychoeducation for families and brief CBT-informed interventions (Patel et al., 2016).

Risk factors

- Family history of anxiety or mood disorders, behavioural inhibition, and overprotective or critical parenting.
- Stress, bullying, trauma, chronic physical illness, and academic or social pressure (Ernstmayer et al., 2022; Patel et al., 2016).

Treatment approaches

- Cognitive behavioural therapy with exposure is first-line for most adolescent anxiety disorders.
- SSRIs may be used for moderate to severe or treatment-resistant cases, ideally combined with CBT and supported by family involvement and school accommodations (Bandelow et al., 2021).

Autism Spectrum Disorders

Diagnostic criteria

Autism spectrum disorders are characterised by impaired social interaction, communication difficulties, repetitive or stereotypical behaviour, and special interests. The ICD-11 and DSM-5 use a dimensional approach rather than older categorical subtypes. Core features include persistent deficits in social communication and reciprocal interaction, restricted and inflexible patterns of behaviour, unusual sensory responses, onset during development, and clinically significant impairment.

Some individuals compensate through extraordinary effort, so difficulties may not be obvious in everyday settings; the diagnosis can still be appropriate (WHO, 2025)

Prevention measures

ASD cannot be prevented, but early intervention can support development. Early and regular developmental screening, parental training, and routine paediatric monitoring are recommended. Informational materials and self-help groups can also be helpful.

Risk factors

The causes of ASD are not fully understood. Genetic factors are substantial, with heritability estimated at 70–90%. Prenatal factors such as inflammation, endocrine imbalance, mitochondrial dysfunction, and the gut microbiome may also contribute (Genovese & Butler, 2023; Love et al., 2024).

Treatment approaches / Intervention

ASD cannot be cured, but interventions can improve skills, coping, and quality of life. Psychotherapy may help with comorbid anxiety or depression and support self-acceptance. ABA can improve communication and behaviour, though it is also controversial. TEACCH uses structure, routines, and visual support. PECS helps initiate communication through visual symbols. Additional supports may include speech therapy, occupational therapy, and music therapy (Autism Speaks, n.d.; Bondy & Frost, 2001; TEACCH Autism Program, 2026).

Depressive disorders

Diagnostic criteria

Depressive disorders are characterised by persistent depressed or irritable mood and/or markedly reduced interest or pleasure for at least two weeks, together with symptoms such as sleep or appetite change, low energy, poor concentration, guilt, and suicidal thoughts. Symptoms must cause clinically significant distress or impairment and not be due to substances, medical illness, or bereavement alone. Children often show more somatic complaints and irritability, while adolescents more often show low mood, anhedonia, cognitive distortions, and increased suicidality (APA, 2013; Patel et al., 2016).

Prevention measures

- Universal prevention includes teaching stress management, problem solving, relaxation, and psychoeducation in school settings (Patel et al., 2016; Schulte-Körne, 2018).
- Selected prevention targets high-risk groups, especially children of depressed parents, by improving parent-child interaction and reducing family stress. Targeted interventions should be used for youth with subclinical symptoms or elevated vulnerability (Schulte-Körne, 2018).

Risk factors

Family history of depression or bipolar disorder, prior depressive episodes or anxiety, chronic illness, abuse, bullying, and loss as well as minority stress, discrimination, academic or social stressors, ADHD, and substance use (Ernstmayer et al., 2022, Schulte-Körne, 2018).

Treatment approaches

- Psychotherapy is first-line and can be delivered individually, in groups, or with family involvement. · Physical activity can be used as a complementary intervention (Schulte-Körne, 2023).
- SSRIs may be considered in some adolescents with careful monitoring of suicidality and side effects (Hetrick et al., 2021; Schulte-Körne et al., 2023). In moderate to severe or recurrent depression, combined psychotherapy and medication may be more effective than either alone (Dolle & Schulte-Körne, 2013).

Eating disorders

Diagnostic criteria

The ICD-11 and DSM-5 distinguish anorexia nervosa, bulimia nervosa, and binge eating disorder. Anorexia involves restrictive intake, significantly low weight, fear of weight gain, and body image disturbance. Bulimia includes recurrent binge eating, loss of control, compensatory behaviours, and overvaluation of weight and shape. Binge eating disorder involves recurrent binges with loss of control and marked distress, without compensatory behaviour (Kölch et al., 2020).

Prevention measures

- School-based body image and dissonance-based programs can reduce onset of eating pathology (Strice et al., 2021).
- Family-focused and media-literacy interventions can reduce body dissatisfaction and disordered eating (Bennett et al., 2023; Liu et al., 2025).
- Early identification and brief interventions in primary care or school settings can help prevent progression to full disorders (Wong et al., 2024; Berry et al., 2025).

Risk factors

- Sociocultural factors such as thin or muscular ideal internalization, appearance-focused comparison, and weight-stigmatizing media (Varela et al., 2023).

- Interpersonal and family factors such as weight-related teasing, parental encouragement to diet, stress, and low family cohesion (Varela et al., 2023).
- Individual factors such as dieting, negative affect, low self-esteem, body dissatisfaction, and perfectionism (Strice et al., 2021; Varela et al., 2023).

Treatment approaches

- Family-based treatment is the first-line outpatient approach for adolescents with anorexia nervosa and bulimia nervosa (Goldschmidt et al., 2023; Haas et al., 2023; Hagan et al., 2023).
- CBT and FBT can both be effective, with treatment choice guided by patient and family characteristics. CBT is particularly useful for binge eating, purging, and overvaluation of weight and shape (LaGrange et al., 2022).

Internet Gaming disorder

Internet gaming disorder describes a reduced ability to control gaming and may involve cravings, tolerance, and withdrawal symptoms. It can lead to impairment, social isolation, anxiety, or depression. Around 2% of children and adolescents in representative samples are affected (Paulus et al., 2018).

Risk factors

Risk factors include male sex, older adolescence, low self-esteem, social isolation, limited offline friendships, poor school performance, truancy, low school engagement, and unemployment (Paulus et al., 2018).

Treatment approaches

Treatment recommendations favour manualized CBT and family-based interventions rather than pharmacological approaches. The WHO also provides further information on gaming disorder (Pogarell et al. 2023).

More information: <https://www.who.int/standards/classifications/frequently-asked-questions/gaming-disorder>

Substance use disorder

Diagnostic criteria

Substance use disorder involves a maladaptive pattern of use causing impairment or distress, with at least two of eleven criteria within 12 months. These include taking larger amounts than intended, unsuccessful attempts to cut down, craving, role failure, social problems, and hazardous use. Continued use despite harm, tolerance, and withdrawal may also be present, with severity ranging from mild to severe (Hasin et al., 2013; Kölch et al., 2020).

Prevention measures

School-based life-skills programs reduce substance use and related risk factors. Multi-component approaches combining school bonding, classroom curricula, parental involvement, prosocial involvement, and community policies show stronger and more durable effects (Griffin et al., 2022; Kulis et al., 2007).

Risk factors

- Individual factors include early onset, impulsivity, externalizing problems, sensation seeking, depressive or anxiety symptoms, and poor school performance (De Micheli et al., 2020).
- Family factors include parental substance use, low monitoring, family conflict, and permissive attitudes (Horigian et al., 2020).

- Peer and community factors include substance-using peers, pro-use norms, and high availability of substances (Horigian et al., 2020; Nieri et al., 2025).

Treatment approaches

- CBT, functional analysis, coping skills, and relapse prevention are first-line psychosocial approaches (Fadus et al., 2019). Motivational interviewing is especially useful for ambivalent youth and brief interventions (Gersib et al., 2024; Marshall et al., 2025).
- Family-based treatments can reduce substance use and improve family functioning (Horigian et al., 2020).
- Moderate to severe cases may require integrated care across school, primary care, and addiction services, with pharmacotherapy in selected older adolescents and young adults (Fadus et al., 2019; Marshall et al., 2025).

Serious gaming in the prevention and treatment of mental disorders

What is meant by “serious gaming”?

Serious gaming uses digital games on computers, mobile phones, or virtual reality to support health, for example by improving health literacy, supporting rehabilitation, and promoting emotional and cognitive wellbeing. Reviews suggest initial evidence for feasibility, acceptability, and effectiveness in adolescent mental health.

Recent findings on serious gaming for adolescent mental health

Gamification can be an effective learning strategy for children and adolescents to build mental health skills (Xie, 2022). Studies suggest short-term benefits for mental health literacy, although small samples and limited adherence reduce confidence in these findings (Zeiler et al., 2025). Most research so far has focused on feasibility, while robust effectiveness studies remain limited; anxiety is more often studied in younger adolescents, and depressive symptoms in older adolescents (Martínez et al., 2021).

References

- Agyapong-Opoku, N., Agyapong-Opoku, F., & Greenshaw, A. J. (2025). Effects of Social Media Use on Youth and Adolescent Mental Health: A Scoping Review of Reviews. *Behavioral Sciences*, 15(5), 574. <https://doi.org/10.3390/bs15050574>
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). American Psychiatric Publishing. <https://doi.org/10.1176/appi.books.9780890425596>
- Arbeitsgemeinschaft der Wissenschaftlichen Medizinischen Fachgesellschaften. (2021). *S3-Leitlinie Behandlung von Angststörungen* (Version 2). https://register.awmf.org/assets/guidelines/051-028l_S3_Behandlung-von-Angststoerungen_2021-06.pdf
- Australian ADHD Professionals Association. (2022). *Australian evidence-based clinical practice guideline for attention deficit hyperactivity disorder (ADHD)*. <https://adhdguideline.aadpa.com.au/wp-content/uploads/2022/10/ADHD-Clinical-Practice-Guide-041022.pdf>
- Autism Speaks. (n.d.). *Applied behavior analysis (ABA)*. Retrieved June 2, 2026, from <https://www.autismspeaks.org/applied-behavior-analysis>

The Autism Service. (2023, March 20). *Music therapy and autism: How it can help people with ASD*. <https://theautismservice.co.uk/music-therapy-and-autism-how-it-can-help-children-and-adults-with-asd/>

Bennett, B. L., Pokhrel, P., & Latner, J. D. (2023). Delivering a media literacy intervention for body dissatisfaction using an app-based intervention: A feasibility and pilot trial. *Eating behaviors*, 50, 101770. <https://doi.org/10.1016/j.eatbeh.2023.101770>

Berry, S. L., Burton, A. L., Rogers, K., Lee, C. M., & Berle, D. M. (2025). A systematic review and meta-analysis of eating disorder preventative interventions in schools. *European eating disorders review: the journal of the Eating Disorders Association*, 33(2), 390–410. <https://doi.org/10.1002/erv.3149>

Bondy, A., & Frost, L. (2001). *The Picture Exchange Communication System*. *Behavior Modification*, 25(5), 725–744. <https://doi.org/10.1177/0145445501255004>

Chan, C. (2025, August 22). *Applied behavioral analysis (ABA) controversy explained*. Autism Today Foundation. <https://www.autismtoday.com/applied-behavioral-analysis/>

Dolle, K., & Schulte-Körne, G. (2013). The treatment of depressive disorders in children and adolescents. *Deutsches Ärzteblatt international*, 110(50), 854–860. <https://doi.org/10.3238/arztebl.2013.0854>

Eom, T. H., & Kim, Y.-H. (2024). Clinical practice guidelines for attention-deficit/hyperactivity disorder: Recent updates. *Clinical and Experimental Pediatrics*, 67(1), 26–34. <https://doi.org/10.3345/cep.2021.01466>

Ernstmeyer, K., & Christman, M. S. (2022). *Attention deficit hyperactivity disorder*. In StatPearls. StatPearls Publishing. <https://www.ncbi.nlm.nih.gov/books/NBK590039/>

Fadus, M. C., Squeglia, L. M., Valadez, E. A., Tomko, R. L., Bryant, B. E., & Gray, K. M. (2019). Adolescent Substance Use Disorder Treatment: an Update on Evidence-Based Strategies. *Current psychiatry reports*, 21(10), 96. <https://doi.org/10.1007/s11920-019-1086-0>

Genovese, A., & Butler, M. G. (2023). The Autism Spectrum: Behavioral, Psychiatric and Genetic Associations. *Genes*, 14(3), 677. <https://doi.org/10.3390/genes14030677>

Gersib, J. A., Rojo, M., King, S. G., & Doabler, C. T. (2024). Motivational interviewing for students in school settings: A meta-analysis. *Journal of school psychology*, 107, 101386. <https://doi.org/10.1016/j.jsp.2024.101386>

Goldschmidt, A. B., Tortolani, C. C., Egbert, A. H., Brick, L. A., Elwy, A. R., Donaldson, D., & Le Grange, D. (2022). Implementation and outcomes of home-based treatments for adolescents with anorexia nervosa: Study protocol for a pilot effectiveness-implementation trial. *The International journal of eating disorders*, 55(11), 1627–1634. <https://doi.org/10.1002/eat.23796>

Le Grange, D., Eckhardt, S., Dalle Grave, R., Crosby, R. D., Peterson, C. B., Keery, H., ... Martell, C. (2022). Enhanced cognitive-behavior therapy and family-based treatment for adolescents with an eating disorder: a non-randomized effectiveness trial. *Psychological Medicine*, 52(13), 2520–2530. <https://doi.org/10.1017/S0033291720004407>

- Griffin, K. W., Williams, C., Botvin, C. M., Sousa, S., & Botvin, G. J. (2022) Effectiveness of a hybrid digital substance abuse prevention approach combining e-Learning and in-person class sessions. *Frontiers in Digital Health*, 4. <https://doi.org/10.3389/fdgth.2022.931276>
- Grüning Parache, L., Vogel, M., Meigen, C., et al. (2024). Family structure, socioeconomic status, and mental health in childhood. *European Child & Adolescent Psychiatry*, 33, 2377–2386. <https://doi.org/10.1007/s00787-023-02329-y>
- Haas, V., Wechsung, K., Kaiser, V., Schmidt, J., Raile, K., Busjahn, A., Le Grange, D., & Correll, C. U. (2024). Comparing family-based treatment with inpatient treatment in youth with anorexia nervosa eligible for hospitalization: A 12-month feasibility study. *International Journal of Eating Disorders*, 57(2), 388–399. <https://doi.org/10.1002/eat.24098>
- Hagan, K. E., Matheson, B. E., Datta, N., L'Insalata, A. M., Onipede, Z. A., Gorrell, S., Mondal, S., Bohon, C. M., Le Grange, D., & Lock, J. D. (2023). Understanding outcomes in family-based treatment for adolescent anorexia nervosa: a network approach. *Psychological medicine*, 53(2), 396–407. <https://doi.org/10.1017/S0033291721001604>
- Hasin, D. S., O'Brien, C. P., Auriacombe, M., Borges, G., Bucholz, K., Budney, A., Compton, W. M., Crowley, T., Ling, W., Petry, N. M., Schuckit, M., & Grant, B. F. (2013). DSM-5 criteria for substance use disorders: recommendations and rationale. *The American journal of psychiatry*, 170(8), 834–851. <https://doi.org/10.1176/appi.ajp.2013.12060782>
- Hetrick, S. E., McKenzie, J. E., Bailey, A. P., Sharma, V., Moller, C. I., Badcock, P. B., Cox, G. R., Merry, S. N., & Meader, N. (2021). *New generation antidepressants for depression in children and adolescents: A network meta-analysis*. *Cochrane Database of Systematic Reviews*, 2021(5), Article CD013674. <https://doi.org/10.1002/14651858.CD013674.pub2>
- Hill, E. D., Kashyap, P., Raffanella, E., et al. (2025). Prediction of mental health risk in adolescents. *Nature Medicine*, 31, 1840–1846. <https://doi.org/10.1038/s41591-025-03560-7>
- Horigian, V. E., Anderson, A. R., & Szapocznik, J. (2016). Family-Based Treatments for Adolescent Substance Use. *Child and adolescent psychiatric clinics of North America*, 25(4), 603–628. <https://doi.org/10.1016/j.chc.2016.06.001>
- Kim, Y. J., Lee, J. H., Kim, D. H., Kim, S. A., Lee, H. J., Kim, Y. J., Kim, Y. S., & Yoo, J. H. (2023). Clinical practice guidelines for attention-deficit/hyperactivity disorder. *Clinical and Experimental Pediatrics*, 67(1), 26–34. <https://doi.org/10.3345/cep.2021.01466>
- Kölch, M., Rassenhofer, M., & Fegert, J. M. (Eds). (2020). *Klinikmanual Kinder- und Jugendpsychiatrie und -psychotherapie* (3rd ed.) Springer. <https://doi.org/10.1007/978-3-662-58418-7>
- Kulis, S., Nieri, T., Yabiku, S., Stromwall, L. K., & Marsiglia, F. F. (2007). Promoting reduced and discontinued substance use among adolescent substance users: effectiveness of a universal prevention program. *Prevention science: the official journal of the Society for Prevention Research*, 8(1), 35–49. <https://doi.org/10.1007/s11121-006-0052-3>
- Liu, L., Yang, J., Tan, F., Yang, X., Luo, H., Chen, Y., & Zhao, X. (2025). Digital Interventions for Improving Body Dissatisfaction in Children and Emerging Adults: Systematic Review and Meta-Analysis. *Interactive journal of medical research*, 14, e72231. <https://doi.org/10.2196/72231>

Love, C., Sominsky, L., O'Hely, M., Berk, M., Vuillermin, P., & Dawson, S. L. (2024). Prenatal environmental risk factors for autism spectrum disorder and their potential mechanisms. *BMC medicine*, 22(1), 393. <https://doi.org/10.1186/s12916-024-03617-3>

Magnus W, Anilkumar AC, Shaban K. Attention Deficit Hyperactivity Disorder. [Updated 2023 Aug 8]. In: *StatPearls [Internet]*. Treasure Island (FL): StatPearls Publishing; 2026 Jan-. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK441838/>

Marshall, T., Reeson, M., Loverock, A. et al. Evidence-based Interventions for Youth With Concurrent Mental Health and Substance Use Disorders: A Scoping Review. *The Canadian Journal of Psychiatry*, 70(5). 347–371. <https://doi.org/10.1177/07067437241300957>

Martínez, K., Menéndez-Menéndez, M. I., & Bustillo, A. (2021). Awareness, prevention, detection, and therapy applications for depression and anxiety in serious games for children and adolescents: Systematic review. *JMIR Serious Games*, 9(4), e30482. <https://doi.org/10.2196/30482>

Meo, S. A., Shafi, K. M., & Hussain, A. (2025). The psychological cost of climate change: Anxiety among adolescents and young adults - a cross-sectional study. *Frontiers in Psychiatry*, 16, 1422338. <https://doi.org/10.3389/fpsyt.2025.1422338>

De Micheli, D., Andrade, A. L. M., & Galduróz, J. C. (2021). Limitations of DSM-5 diagnostic criteria for substance use disorder in adolescents: what have we learned after using these criteria for several years?. *Revista brasileira de psiquiatria*, 43(4), 349–350. <https://doi.org/10.1590/1516-4446-2020-1151>

Nieri, T., Apkarian, J., Kulis, S., & Marsiglia, F. F. (2015). Effects of a youth substance use prevention program on stealing, fighting, and weapon use. *The journal of primary prevention*, 36(1), 41–49. <https://doi.org/10.1007/s10935-014-0373-0>

Patel, V., Chisholm, D., Dua, T., Laxminarayan, R., & Medina-Mora, M. E. (Eds.). (2016). *Mental, neurological, and substance use disorders: Disease Control Priorities* (3rd ed., Vol. 4). The World Bank. <https://doi.org/10.1596/978-1-4648-0426-7>

Paulus, F. W., Ohmann, S., von Gontard, A., & Popow, C. (2018). Internet gaming disorder in children and adolescents: A systematic review. *Developmental Medicine & Child Neurology*, 60(7), 645–659. <https://doi.org/10.1111/dmcn.13754>

Pogarell, O., Lieb, K., Turner, D., & Tüscher, O. (2023). Störungen durch Substanzkonsum oder abhängige Verhaltensweisen. In K. Lieb (Hrsg.), *Intensivkurs Psychiatrie und Psychotherapie* (10. Aufl., S. 367–405). Urban & Fischer. <https://doi.org/10.1016/B978-3-437-23492-7.00013-6>

Schulte-Körne, G. (2018). Prävention psychischer Störungen bei Kindern und Jugendlichen. *Bayerisches Ärzteblatt*, 73(4), 190–193. https://www.bayerisches-aerzteblatt.de/fileadmin/aerzteblatt/ausgaben/2018/04/einzelpdf/BAB_4_2018_190_193.pdf

Schulte-Körne, G., Klingele, C., Zsigo, C., & Kloek, M. (2023). S3-Leitlinie depressive Störungen im Kindes- und Jugendalter: Wo geht es hin? *Bundesgesundheitsblatt - Gesundheitsforschung - Gesundheitsschutz*, 66(7), 767–773. <https://doi.org/10.1007/s00103-023-03721-4>

Shah, R., Grover, S., & Avasthi, A. (2019). Clinical practice guidelines for the assessment and management of attention-deficit/hyperactivity disorder. *Indian Journal of Psychiatry*, 61(Suppl. 2), 176–193. https://doi.org/10.4103/psychiatry.IndianJPsychiatry_543_18

Solmi, M., Radua, J., Olivola, M., Croce, E., Soardo, L., Salazar de Pablo, G., Ilioska, I., Shin, J. I., Kirkbride, J. B., Jones, P., Kim, J. H., Carvalho, A. F., Seeman, M. V., Correll, C. U., & Fusar-Poli, P. (2021). Age at onset of mental disorders worldwide: Large-scale meta-analysis of 192 epidemiological studies. *The Lancet Psychiatry*, 8(10), 885–898. [https://doi.org/10.1016/S2215-0366\(21\)00395-3](https://doi.org/10.1016/S2215-0366(21)00395-3)

Solmi, M., Radua, J., Olivola, M., Croce, E., Soardo, L., Salazar de Pablo, G., Shin, J., Kirkbride, J. B., Jones, P., Kim, J. H., Kim, J. Y., Carvalho, A. F., Seeman, M. V., Correll, C. U., & Fusar-Poli, P. (2022). Age at onset of mental disorders worldwide: large-scale meta-analysis of 192 epidemiological studies. *Molecular psychiatry*, 27(1), 281–295. <https://doi.org/10.1038/s41380-021-01161-7>

Strice, E., Onipede, Z. A., & Marti, C. N. (2021). A meta-analytic review of trials that tested whether eating disorder prevention programs prevent eating disorder onset. *Clinical Psychology Review*, 87. <https://doi.org/10.1016/j.cpr.2021.102046>

TEACCH Autism Program. (n.d.). *Training*. Retrieved June 2, 2026, from <https://teacch.com/trainings/>

Varela, C., Hoyo, Á., Tapia Sanz, M.E., Jiménez-González, A.I., Moral, B.J., Rodríguez Fernández, P., Vargas Hernández, Y., & Ruiz Sánchez, L.J. (2023). An update on the underlying risk factors of eating disorders onset during adolescence: a systematic review. *Frontiers in Psychology* 14(1221679). <https://doi.org/10.3389/fpsyg.2023.1221679>

Wolraich, M. L., Hagan, J. F., Allan, C., Chan, E., Davison, D., Earls, M., Evans, S. W., Flinn, S. K., Froehlich, T., Frost, J., Holbrook, J. R., Lehmann, C. U., Lessin, H. R., Okechukwu, K., Pierce, K. L., Winner, J. D., Zurhellen, W., & Subcommittee on Children and Adolescents with Attention-Deficit/Hyperactivity Disorder. (2019). Clinical practice guideline for the diagnosis, evaluation, and treatment of attention-deficit/hyperactivity disorder in children and adolescents. *Pediatrics*, 144(4), e20192528. <https://doi.org/10.1542/peds.2019-2528>

Wong, R. S., Chan, B. N. K., Lai, S. I., & Tung, K. T. S. (2024). School-based eating disorder prevention programmes and their impact on adolescent mental health: systematic review. *BJPsych Open*, 10(6), e196. <https://doi.org/10.1192/bjo.2024.795>

World Health Organization. (2025). *International classification of diseases 11th revision (ICD-11): Mortality and morbidity statistics (Version 2025-01)*. Retrieved June 2, 2026, from <https://icd.who.int/browse/2025-01/mms/en#437815624>

World Health Organization. (n.d.). *Mental health of adolescents*. <https://www.who.int/news-room/fact-sheets/detail/adolescent-mental-health>

Xie, H. (2022). A scoping review of gamification for mental health in children: Uncovering its key features and impact. *Archives of Psychiatric Nursing*, 41, 132–143. <https://doi.org/10.1016/j.apnu.2022.07.003>

Zeiler, M., Vögl, S., Prinz, U., Werner, N., Wagner, G., Karwautz, A., Zeller, N., Ackermann, L., & Waldherr, K. (2025). Game design, effectiveness, and implementation of serious games promoting aspects of mental health literacy among children and adolescents: Systematic review. *JMIR Mental Health*, 12, e67418. <https://doi.org/10.2196/67418>

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