

## Systematic Review

# Prevalence and interventions for anxiety and depression in children and adolescents

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### ABSTRACT

Anxiety and depression rank among the most prevalent mental health disorders impacting children and adolescents globally, carrying significant consequences for development, academic achievement, and long-term well-being. It is essential to comprehend the prevalence and effectiveness of interventions to enhance mental health outcomes in this population. A systematic literature review was performed in accordance with PRISMA guidelines to identify peer-reviewed studies regarding the prevalence and interventions for anxiety and depression in children and adolescents, published from January 2015 to July 2025. Thorough searches were conducted in PubMed, Scopus, Web of Science, and PsycINFO utilizing pertinent keywords. After removing 815 duplicates from a total of 2,147 records, 1,332 unique records underwent title/abstract screening and full-text assessment. Thirty studies meeting rigorous inclusion criteria were included in the final synthesis. The findings demonstrate a high prevalence of anxiety and depression in children and adolescents, with pooled rates varying from 13% to 25% across various countries and contexts. Cognitive Behavioral Therapy (CBT) has been consistently recognized as the most effective intervention, demonstrating positive outcomes for anxiety and depressive symptoms. Selective serotonin reuptake inhibitors (SSRIs) and digital interventions offer supplementary advantages, especially for moderate-to-severe cases and in resource-limited environments. Nonetheless, disparities persist in access to care, management of comorbidities, and long-term outcomes. Anxiety and depression are common and frequently co-occur in young individuals; however, there are effective interventions available. Improving access to evidence-based therapies and expanding digital health options are critical measures to address unmet needs and enhance mental health in this vulnerable population.

**Keywords:** Anxiety, Depression, Children, Adolescents, Prevalence, Interventions, Cognitive behavioral therapy, Systematic review, Mental health, Digital interventions

### INTRODUCTION

Anxiety and depression are really important mental health problems that affect kids and teenagers all around the world. Over the past decade, there has been a notable increase in these conditions, prompting extensive research and public health initiatives aimed at understanding their patterns, causes, and possible solutions. Mental health disorders that happen during childhood and adolescence make it much harder for kids

to make friends, do well in school, and deal with their feelings. They also raise the chance of having mental and physical health problems as adults. Recent comprehensive investigations and systematic reviews indicate that the prevalence rates of anxiety and depression among children and adolescents remain markedly high. Racine et al performed a meta-analysis revealing pooled prevalence rates of clinically significant symptoms of depression and anxiety at 25.2% and 20.5%, respectively, among children and adolescents during the

COVID-19 pandemic. A 2025 study from India corroborated this, revealing a prevalence of 25.92% for depression and 13.70% for anxiety among school-going teenagers, highlighting diverse risk factors and regional disparities in mental health burden.<sup>1</sup> The CDC says that about 8% of kids ages 3 to 17 have been told they have anxiety and 4% have been told they have depression.<sup>2</sup> Trend analyses from extensive cohort studies, including the research conducted by Xiang et al reveal a substantial increase in the diagnosis of these disorders among youth, with a 60% rise in depression diagnoses and a 31% rise in anxiety diagnoses from 2017 to 2021, partially exacerbated by the social and psychological ramifications of the COVID-19 pandemic. These rising trends highlight the imperative to develop and enhance suitable mental health treatments for this population.<sup>3</sup> A significant consideration in pediatric mental health is the concurrent occurrence of anxiety and depression. Dudeney et al highlighted that comorbid presentations not only complicate the clinical picture but may also predict heightened severity, treatment resistance, and inferior outcomes if inadequately managed. Children and adolescents suffering from chronic pain or life-limiting illnesses exhibit a significantly heightened incidence of anxiety and depression. Approximately one-third of adolescents with chronic pain also suffer from an anxiety problem, while roughly one-eighth are affected by a depressive disorder. This highlights the intricate relationship between physical and mental health in younger demographics.<sup>4</sup> A variety of factors lead to the emergence of anxiety and depression in teenagers, including genetic predispositions, neurodevelopmental impacts, familial dynamics, academic pressures, and socio-environmental challenges. Yin et al identified academic stress as a significant predictor of depressive symptoms in adolescents. Anderson et al emphasized that contemporary stressors, including the political climate, environmental issues, and exposure to gun violence, significantly contribute to the rising anxiety levels among youth. The many origins of numerous disorders necessitate a holistic approach to prevention and treatment.<sup>5,6</sup> Interventions aimed at mitigating anxiety and depression in children and adolescents have achieved considerable advancements in their development and assessment. CBT is widely acknowledged as the primary treatment for anxiety disorders and is recommended as a first-line intervention for both anxiety and depression in youthful populations. In the context of depression treatment, interpersonal therapy (IPT) has been demonstrated to be efficacious. Selective serotonin reuptake inhibitors (SSRIs) are recommended for moderate-to-severe depression and anxiety, and they are typically used in conjunction with psychotherapy to improve therapeutic outcomes.<sup>7,8</sup> Pharmacological interventions are implemented with meticulous consideration. Recent studies highlight the growing importance of e-Health interventions, which provide scalable and accessible mental health support for children and adolescents in diverse contexts. Innovations such as attention bias modification therapy are presently being

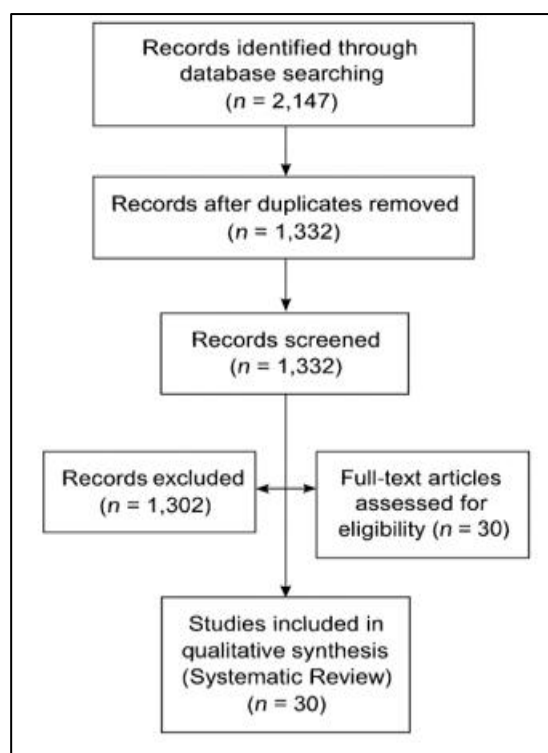
studied, offering potential for new, low-risk therapeutic methods.<sup>9,10</sup> Furthermore, the emphasis on prevention and early detection is gaining traction in healthcare systems globally, with pediatricians actively participating in the screening and preliminary management of anxiety and depression in their patient populations. Multi-phased, individualized approaches to treatment are recommended, particularly for young individuals facing both mental and physical health challenges.<sup>11</sup> Despite the rising rates of diagnosis, there exists promising evidence indicating that coordinated intervention strategies, enhanced awareness, and focused policies could contribute to a reduction in the overall burden of anxiety and depression among adolescents over time. According to Liu et al the absolute disability-adjusted life years (DALYs) associated with teenage anxiety disorders have decreased over the previous thirty years, showing that these measures are beginning to have a positive impact. Nevertheless, disparities in the availability of services, stigma, and variations in clinical practice remain challenges to universal access to mental health care.<sup>12</sup> As knowledge of the neurodevelopmental and psychosocial factors influencing adolescent mental health deepens, the opportunities for novel interventions also increase. Rikard-Bell et al advocate for a reassessment of the developmental frameworks underpinning current models of teenage depression, with the objective of improving early detection, customizing therapies, and enhancing overall results.<sup>13</sup> Due to the consistently elevated prevalence rates, intricate manifestations, and advancing therapeutic approaches for anxiety and depression in children and adolescents, it is essential to integrate contemporary research to enhance clinical practice and policy effectively. This systematic literature review, adhering to PRISMA guidelines and encompassing 30 high-quality studies, seeks to deliver a thorough analysis of the prevalence and efficacy of treatments for anxiety and depression in children and adolescents. This review aims to meticulously gather and assess data from the latest and most relevant studies to discern current trends, uncover deficiencies in the literature, and provide recommendations for future research, practice, and policy development.

## METHODS

This systematic literature review was conducted to assess the prevalence and interventions for anxiety and depression in children and adolescents. The review followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines.

### Search strategy

A thorough search was conducted across databases, such as PubMed, Scopus, Web of Science, and PsycINFO. Terms associated with “anxiety,” “depression,” “children,” “adolescents,” “prevalence,” and “intervention” were utilized, both separately and in conjunction.



**Figure 1: PRISMA guidelines.**

### **Inclusion criteria**

Inclusion criteria consisted of peer-reviewed original research articles published in English from January 2015 to July 2025. The studies must report on the prevalence or offer empirical evaluation of interventions targeting anxiety and/or depression in children and adolescents aged 6 to 18 years.

### **Exclusion criteria**

Review articles, editorials, studies focused on adults, non-English publications, and gray literature were excluded.

### **Study selection**

All identified records were imported into a reference management tool. Duplicates were removed. Two reviewers independently screened titles and abstracts to identify potentially eligible studies. The full texts of relevant articles were then retrieved and screened for eligibility based on the predefined criteria. Discrepancies were resolved by consensus or by a third reviewer.

### **Data extraction and analysis**

Data were extracted systematically, including study characteristics (author, year, country, sample size, age range), study design, prevalence rates, intervention types, outcome measures, and main findings.

### **Final selection**

A total of 2,147 records were identified through the initial database searches regarding the prevalence and interventions for anxiety and depression in children and adolescents. Following the elimination of 815 duplicate articles, a total of 1,332 unique records were retained for the screening of titles and abstracts. After conducting the screening and full-text review in accordance with the predetermined inclusion and exclusion criteria, a total of 30 studies were identified as eligible and incorporated into the final systematic review.

## **RESULTS**

The prevalence of anxiety and depression among children and adolescents remains notably high worldwide, representing a critical mental health challenge. Meta-analytical data report pooled prevalence rates of approximately 25.2% for depression and 20.5% for anxiety symptoms in youths, signifying a substantial burden on this demographic. Similar results have been reported earlier in regional studies, including research conducted in India, which found the prevalence of depression and anxiety among school-aged adolescents to be 25.92% and 13.7%, respectively. National surveys conducted in the United States indicate that 8% of children between the ages of 3 and 17 have received a diagnosis of anxiety, and 4% have been diagnosed with depression. Furthermore, the lifetime prevalence rates for anxiety and mood disorders are reported to be even higher. These conditions frequently coexist; comorbidity rates are significant, with nearly 75% of children experiencing depression also presenting with anxiety symptoms. The COVID-19 pandemic exacerbated this situation by increasing anxiety, depression, and related psychological distress among children and adolescents globally, especially those with preexisting chronic physical illnesses who face even higher risks for mental health disorders.<sup>14,15</sup> A variety of interconnected risk factors play a role in the emergence of anxiety and depression among young individuals. Factors such as age play a significant role, particularly during adolescence, when there is a marked rise in prevalence. Additionally, academic stress serves as a strong predictor of depressive symptoms. Disruptions in sleep, persistent health issues such as asthma or diabetes, and concurrent psychiatric disorders significantly increase risk. Socioeconomic adversities, including poverty and adverse family environments, add further vulnerability by fostering psychological stressors and limiting resources. Lifestyle factors including prolonged screen exposure, lack of physical activity, and inadequate nutrition serve as further contributors. Biological risk factors, when considered in isolation, seem to have a diminished predictive capacity. In contrast, psychosocial and familial influences, such as parental mental health and temperament characteristics like frustration, significantly contribute to the emergence of anxiety disorders in adolescence.<sup>16</sup> CBT is extensively acknowledged as the most efficacious treatment approach

for pediatric anxiety and depression. Comprehensive analysis highlights its effectiveness across various age groups, including very young children, demonstrating significant decreases in anxiety and depressive symptoms following treatment, along with low rates of relapse during subsequent follow-up. The integration of behavioral activation, cognitive restructuring, and caregiver participation improves treatment results. Complementary psychotherapeutic approaches, including interpersonal therapy, acceptance and commitment therapy, and social skills training, demonstrate potential effectiveness, especially for certain subpopulations or less severe cases. Pharmacological intervention primarily consists of Selective Serotonin Reuptake Inhibitors (SSRIs), which have shown moderate efficacy in addressing moderate to severe cases. These medications are frequently prescribed and are often utilized alongside psychotherapy to enhance treatment outcomes; however, it is essential to conduct careful monitoring due to the possibility of adverse effects, including suicidality.<sup>17</sup> Innovative digital and electronic health interventions present scalable and accessible solutions for the treatment of pediatric anxiety and depression, especially advantageous for underserved communities. Internet-delivered cognitive behavioral therapy and blended digital programs demonstrate efficacy in reducing anxiety

symptoms, with research backing their relevance to both family-oriented and youth-centered approaches. Furthermore, innovative mechanism-based therapies, such as cognitive training and brain stimulation techniques, are currently being explored for cases that do not respond to standard treatments, focusing on the fundamental cognitive and neural circuit impairments. Complementary lifestyle interventions that focus on physical activity, sleep hygiene, and nutrition are progressively being incorporated into holistic care strategies to enhance and sustain mental well-being.<sup>18</sup> Evidence-based interventions have led to generally improved outcomes for affected youth, demonstrating reductions in symptoms, enhanced functioning, and an overall better quality of life. Despite treatment, as much as fifty percent of the affected population may still report symptoms, highlighting the necessity for addressing unmet needs and the significance of tailored, multimodal therapeutic approaches. Disparities in access to care continue to pose a considerable challenge, as marginalized populations encounter obstacles in screening, treatment utilization, and long-term adherence. These issues necessitate system-level policy reforms and the integration of mental health services within pediatric care settings.

**Table 1: Key findings of the results.**

| Theme/Variable                               | Key findings  | Source (as cited)                                |
|--|---|--|
| <b>Global prevalence</b>                     | Meta-analytical data report pooled prevalence rates of 25.2% for depression and 20.5% for anxiety symptoms among youths, reflecting a substantial global burden.                                      | Garber et al <sup>14</sup>                       |
| <b>Regional prevalence (India)</b>           | Studies in India found the prevalence of depression (25.92%) and anxiety (13.7%) among school-aged adolescents.   | Garber et al <sup>14</sup>                       |
| <b>U.S. national prevalence</b>              | National surveys indicate that 8% of children aged 3–17 have a diagnosis of anxiety and 4% have been diagnosed with depression. Lifetime prevalence rates are even higher.                            | Garber et al <sup>14</sup>                       |
| <b>Comorbidity</b>                           | Approximately 75% of children with depression also present with comorbid anxiety symptoms.  | Garber et al <sup>14</sup>                       |
| <b>Impact of COVID-19 pandemic</b>           | The pandemic significantly increased anxiety, depression, and psychological distress among children and adolescents globally, particularly among those with preexisting chronic illnesses.            | Garber et al <sup>14</sup> , Meade <sup>15</sup> |
| <b>Age as a risk factor</b>                  | The prevalence of anxiety and depression increases significantly during adolescence, reflecting a developmental vulnerability.  | Wahid et al <sup>16</sup>                        |
| <b>Academic stress</b>                       | Academic stress is identified as a strong predictor of depressive symptoms among adolescents.   | Wahid et al <sup>16</sup>                        |
| <b>Sleep and physical health</b>             | Sleep disruption, chronic conditions (e.g., asthma, diabetes), and concurrent psychiatric disorders elevate risk for anxiety and depression.  | Wahid et al <sup>16</sup>                        |
| <b>Socioeconomic adversity</b>               | Factors such as poverty, family conflict, and low parental support increase vulnerability by adding psychosocial stressors and limiting resources.  | Wahid et al <sup>16</sup>                        |
| <b>Lifestyle contributors</b>                | Prolonged screen time, physical inactivity, and poor nutrition are associated with elevated symptoms of anxiety and depression.   | Wahid et al <sup>16</sup>                        |
| <b>Biological vs. psychosocial risk</b>      | Biological factors alone have limited predictive capacity, whereas psychosocial and familial influences—including parental mental health and temperament traits like frustration—play a greater role. | Wahid et al <sup>16</sup>                        |
| <b>Primary psychological treatment (CBT)</b> | Cognitive Behavioral Therapy (CBT) is the most effective and evidence-based treatment for pediatric anxiety and depression, showing substantial symptom reduction and low relapse rates.              | Zugman et al <sup>17</sup>                       |

Continued.



| Theme/Variable                                | Key findings  | Source (as cited)             |
|---|---|-------------------------------|
| <b>CBT components</b>                         | Incorporating behavioral activation, cognitive restructuring, and caregiver involvement enhances treatment effectiveness.   | Zugman et al <sup>17</sup>    |
| <b>Other psychotherapies</b>                  | Interpersonal Therapy (IPT), Acceptance and Commitment Therapy (ACT), and social skills training show potential benefits in specific subgroups or mild cases.   | Zugman et al <sup>17</sup>    |
| <b>Pharmacological intervention (SSRIs)</b>   | Selective Serotonin Reuptake Inhibitors (SSRIs) demonstrate moderate efficacy in moderate-to-severe cases, often combined with CBT; careful monitoring is needed for adverse effects such as suicidality. | Zugman et al <sup>17</sup>    |
| <b>Digital and e-health interventions</b>     | Internet-delivered CBT and blended digital programs are effective, scalable, and accessible, particularly for underserved populations.  | Sylvester et al <sup>18</sup> |
| <b>Emerging and mechanism-based therapies</b> | Approaches such as cognitive training and brain stimulation are being explored for treatment-resistant youth.   | Sylvester et al <sup>18</sup> |
| <b>Lifestyle and holistic care</b>            | Interventions promoting physical activity, sleep hygiene, and healthy nutrition are increasingly integrated into comprehensive treatment plans.   | Sylvester et al <sup>18</sup> |
| <b>Outcomes of interventions</b>              | Evidence-based therapies yield reductions in symptoms and improved quality of life; however, ~50% of treated youth still report residual symptoms post-treatment.   | Sylvester et al <sup>18</sup> |
| <b>Health disparities</b>                     | Marginalized populations face barriers in screening, treatment access, and adherence, underscoring the need for integrated pediatric mental health services and policy reforms.                           | Sylvester et al <sup>18</sup> |

## DISCUSSION

Research conducted on population samples indicates that a considerable number of young individuals across the globe are impacted by anxiety and depression. Data from the United States reveal that around 7.1% of children aged 3-17 are currently experiencing anxiety issues, while 3.2% show signs of depressive disorders. Additionally, nationally representative surveys indicate that lifetime prevalence rates can be as high as 31.9% for anxiety and 14.3% for mood disorders among adolescents. In a similar vein, the World Health Organization estimates that anxiety disorders affect approximately 4.4% to 5.5% of the youth population within the 10-19 age bracket on a global scale. Meta-analyses that aggregate international data indicate that clinically significant symptoms of anxiety and depression impact approximately 20% to 25% of children and adolescents, respectively. The results highlight the persistent and significant impact of these disorders in various settings.<sup>19</sup> Recent research underscores the worsening impact of the COVID-19 pandemic on the mental health of young individuals, revealing significant rises in both diagnosis rates and the severity of symptoms throughout and following the pandemic phase. The social disruptions, isolation, and uncertainty brought about by the pandemic exacerbated mental health risks, particularly for individuals with pre-existing chronic physical conditions or those facing socioeconomic vulnerabilities. Comorbidity represents a significant clinical issue, as nearly 75% of young individuals diagnosed with depression also exhibit notable anxiety symptoms, thereby complicating both treatment strategies and prognostic outcomes. The regular co-occurrence observed indicates the presence of shared

neurobiological, psychological, and environmental factors.<sup>3,20</sup> The factors contributing to anxiety and depression in young individuals encompass a range of biological, psychological, and socio-environmental aspects. Genetic predisposition and temperament traits, such as increased vulnerability to frustration, are contributing factors; however, psychosocial stressors like academic pressures, negative family environments, socioeconomic disadvantages, and disrupted sleep patterns have significant impacts. Lifestyle factors, such as extended screen time and insufficient physical activity, markedly elevate susceptibility. Understanding how different factors work together is important for directing preventative efforts and tailoring therapies that address multiple risk factors.<sup>21</sup> Evidence-based intervention techniques for pediatric anxiety and depression underscore the need of multimodal approaches. CBT is acknowledged as the principal psychological intervention for instances deemed mild to moderate. Meta-analyses show that CBT is beneficial because it leads to long-lasting decreases in symptoms and prevents relapse. This is because therapy promotes cognitive restructuring, behavioral activation, and abilities for regulation. When symptoms are moderate to severe or do not respond to treatment, combination therapy that includes CBT and SSRIs has been demonstrated to work better. Clinical investigations have validated this approach for various anxiety disorders and major depressive episodes in adolescents. Pharmacological treatment, while efficacious, requires meticulous surveillance for adverse effects, notably an increased risk of suicidality during the initial stages of treatment.<sup>22</sup> The rapid growth of technology has made it much easier for young people to get mental health care. This is especially important because of the shortages and problems that the epidemic

has made worse. Digital mental health interventions (DMHIs), such as internet-delivered cognitive behavioral therapy, mobile applications, and virtual reality tools, exhibit significant efficacy in alleviating symptoms and improving mental health literacy, while providing advantages of scalability and convenience for children and adolescents. However, obstacles in implementation remain regarding equitable access, professional acceptance, regulatory standards, and the integration with traditional care models.<sup>23-25</sup> The short- and medium-term outcomes of psychosocial and pharmacologic treatments have been extensively documented; however, the long-term effectiveness continues to be a vital area for further investigation. Thorough assessments of interventions with follow-up durations extending to 12 months or longer reveal lasting benefits, particularly regarding depression; however, the findings are less consistent for anxiety disorders. The sustainability of enhancement depends on the administration of treatment by qualified mental health professionals and the intensity of the intervention implemented. Strategies for prevention and early intervention programs that are implemented in educational and primary care environments have demonstrated potential; however, they necessitate additional scaling and assessment to ensure sustainability.<sup>26,27</sup> Despite advancements, major barriers to effective management persist. Primary care providers frequently encounter difficulties in recognizing and diagnosing pediatric mental health problems due to insufficient training, lack of mental health resources, time constraints, and unclear referral pathways to specialist care. The complexities surrounding access and adherence are exacerbated by insurance limitations, prolonged wait times, societal stigma, and familial influences. The systemic challenges encountered have a disproportionate impact on underserved populations, thereby exacerbating the disparities in mental health outcomes observed among marginalized youth. Efforts in public health should focus on strengthening the capacity of primary care, improving mental health literacy, and optimizing integrated care models to address these deficiencies.<sup>28,29</sup> There are notable gaps in our understanding of the most effective therapeutic components and the optimization of pharmacologic regimens to reduce adverse effects, highlighting the necessity for continued research. Innovative therapies targeting fundamental neurocognitive processes, alongside supportive lifestyle modifications such as increased physical activity, improved sleep hygiene, and nutritional enhancements, are increasingly acknowledged as effective adjunctive strategies to enhance outcomes and reduce relapse risk.<sup>30</sup>

## CONCLUSION

This systematic investigation underscores the increasing prevalence and effects of anxiety and depression among children and adolescents across diverse geographic groups. A review of contemporary literature indicates that these illnesses frequently co-occur and are affected by many biological, social, and environmental factors, often

leading to significant functional, educational, and developmental repercussions. Research indicates that CBT is the most effective treatment, particularly for anxiety and depression. Pharmacological interventions, particularly SSRIs, have significant advantages for individuals with moderate to severe problems. Digital interventions have also made things easier to get to, especially in places where resources are scarce and people aren't getting the help they need. Even though treatment methods have improved, many teens still have a hard time accessing mental health care. The stigma, shortage of providers, unequal access to qualified specialists, and disparities in service delivery continue to make it harder to satisfy the needs of the groups that are most affected. Comorbidity exacerbates the issues, underscoring the necessity for treatment regimens that are both comprehensive and individualized, addressing all facets of mental health. The review stresses the need for more research on the long-term impacts, ways to prevent them, and personalized treatments for people who are at high risk. To sum up, the best way to treat kids and teens who are sad or anxious is to work together and use a variety of methods in schools, clinical practice, and public health policy. By making it easier to find young individuals with these major mental health problems early on, increasing evidence-based treatments, and putting money into training providers and digital solutions, stakeholders can greatly enhance the future health and path of these young people.

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