

Creative Arts Interventions for Reducing Stress and Anxiety among Adolescents: A Systematic Review

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ABSTRACT

Although conventional psychological interventions such as counseling, cognitive-behavioral approaches, and medication-based approaches have been mostly used and accepted, and the consistent use of these interventions remain challenging among adolescents. Thus, this study explored creative arts interventions for reducing stress and anxiety among adolescents. The study adopted systematic review of literature. Secondary data were collected from previous related literature between 2016 and 2026, including five (5) databases. The Sample, Phenomenon of Interest, Design Evaluation, and Research type (SPIDER) search strategy was used to consult the databases while the Preferred Reporting Items for Systematic Review and Meta-analyses (PRISMA) was used to select final selected 15 articles. The findings showed that academic, interpersonal, psychological, and lifestyle-related stress factors are prevalent among adolescents. Results showed that biological, psychological, social, and environmental factors shaped adolescents' anxiety. Findings revealed that creative arts interventions are used as non-clinical approaches to help adolescents understand, express, and regulate stress. Results showed that creative arts are effective in reducing adolescents' anxiety, including social anxiety, general anxiety, trauma-related anxiety, and situational anxiety. The common strategy for the implementation of creative arts program is by integrating it into school programs. The study concludes that creative arts interventions provide promising approaches for reducing adolescents' stress and anxiety by enhancing emotional expression, coping skills, social connection, and psychological resilience.

Keywords: Creative arts, adolescents, stress, anxiety, mental health

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I. Introduction

Generally, the adolescent stage is an important phase of one's life that one witnesses different changes, including social, emotional, biological, and psychological developments. This stage is characterized by increasing levels of stress and anxiety, which may arise from factors that are associated with the developments. These may include social relations, family expectations, identity formation, economic challenges, and exposure to adverse life experiences. The continuous stress and anxiety may have negative influence on adolescents' emotional regulation, academic performance, social functioning, and overall wellbeing. Thus, there is a need for effective, accessible, and sustainable intervention strategies that can support adolescents' wellbeing with respect to stress and anxiety. While traditional interventions have been shown to be effective, there is an increasing attention directed towards using creative arts interventions as complementary approaches for reducing psychological distress of stress and anxiety.

Chu et al. (2024) described stress as the physiological and behavioral changes that result from exposure to stressors—physical or psychological stimuli that disrupt homeostasis. The authors categorized stress into types such as acute, chronic, episodic acute, psychological, and physiological stress, and distinguish between eustress (positive) and distress (maladaptive). It was explained further that the stress response is mediated by the nervous, endocrine, and immune systems, activating the sympathetic-adreno-medullary (SAM) axis and the hypothalamic-pituitary-adrenal (HPA) axis. Lu et al. (2021) described stress as a state where homeostasis is challenged, encompassing both system stress and local stress, and notes its application across biological, psychological, physiological, social, and environmental fields. The authors indicate that stress includes three types: sustress (inadequate), eustress (good), and distress (bad), with optimal stress being essential for biological functions.

Biggs et al. (2017) explained psychological stress through numerous theoretical models categorized by their primary conceptualization namely: stress as an external stimulus, as a response, as an individual/environmental interaction, or as an individual/environmental transaction. The authors noted that stress arises from the complex, dynamic, and bidirectional transaction between an individual and their environment, not from either factor alone. Robinson (2018) noted that the concept of psychological stress has expanded across many disciplines in the new millennium, including endocrinology, neurosciences, epidemiology, and epigenetics, reflecting its theoretical and biological complexity. Goodnite (2014) observed

that stress is an individual's perception of an overwhelming stimulus that elicits a measurable response, which results in a transformed state.

Kültz (2020) noted that stress represents a multi-faceted force central for the evolution of life, as organisms adapt to stress, and stressful contexts often serve as selective bottlenecks. Anniko et al. (2019) determined that stress and stress-related mental health complaints are common and increasing among adolescents, especially girls. The authors established that the most frequent source of stress reported by adolescents from 7th through 9th grade. Lin and Guo (2024) discussed that certain cognitive styles, such as maladaptive perfectionism and ruminative thinking, may lead to constant stress and negative emotions, potentially causing psychological disorders in adolescents. Several other scholars (Feiss et al., 2019; Högberg, 2021; Romeo, 2017) identified that stressors are determined by factors such as economic changes, high rate of anxiety disorder, and depressive symptoms. Aside stress, which could intensify emotional pressure and contribute to anxiety through fear, worry, and difficulties in managing emotions. This makes it important to understand stress and anxiety concurrently.

The concept of anxiety is a state versus a trait, which is different from both fear and phobia (Levitt, 2015). Crocq(2015) anxiety is the anticipation of future threat and is distinguished from fear, the emotional response to real or perceived imminent threat. Eysenck (2013) viewed emotion of anxiety from the cognitive perspective, which includes individual differences in both normal and clinical populations. The author noted that anxiety is important in facilitating the detection of danger or threat, which possesses considerable survival value from an evolutionary perspective. Arroll and Kendrick (2018) described anxiety as a universal adaptive response to a threat that can become maladaptive, noting the distinction between normal and abnormal anxiety based on the proportionality to the threat or the presence of unacceptable symptoms.

Davies (2025) describes anxiety as a type of unfounded fear that simultaneously affects the body and mind, often lacking a clear object, which differentiates it from normal fear. It was viewed the concept of anxiety through psychoanalytic and existential perspectives, emphasizing its reflection on the "groundlessness and temporality of being human" before its medicalization. Prior (2024) viewed anxiety in psychology as an umbrella term covering three distinct phenomena: transitory episodes of anxiety ("state anxiety"), a stable disposition to experience these episodes ("trait anxiety"), and "anxiety disorders." The author argues that anxiety is a unified biological functional kind, sharing a biological function centered on the detection of and response to uncertain threats in the environment.

There are generally several causes of anxiety among adolescents. In Netherlands, Narmandakhet al. (2021) identified that anxiety disorders are a common problem in adolescent mental health, with a 25.7% lifetime diagnosis prevalence at age 19. In a recent global study that involved fifty-nine (59) countries, Islam et al. (2025) established that anxiety prevalence varied by region, highest in the Eastern Mediterranean (14.61%) and lowest in Southeast Asia (3.78%), recommending that there is a need for integrated global interventions to reduce adolescent anxiety. This accentuates the need for the current study. Anderson et al. (2025) reported that factors contributing to increased adolescent anxiety rates include academic pressures, social media influence, family dynamics, and broader societal stressors. The authors identified that there are potential clinical, educational, and community-based interventions to prevent and treat anxiety in adolescents. This study explores the option of creative arts interventions to prevent both stress and anxiety.

Martin et al. (2018) noted that creative arts interventions include using arts, music, dance/movement, and drama therapy as innovative ways to prevent and manage stress. The authors argue that arts intervention may be relevant in reducing both stress and anxiety. Lindsey et al. (2018) observed that a 12-hour group intervention using mask-making and mindfulness training of an expressive arts group intervention with eighth-grade students, which led to a significant self-reported reductions of anxiety and stress. This suggests that creative arts intervention, like mask creation, may be more congruent with adolescents' level of cognitive and emotional development compared to talk therapy for managing stress and anxiety. Agres et al. (2025) reported that drumming and dancing sessions led to significant reduction in stress scores and anxiety scores. All of these indications highlight the possible importance of creative arts interventions to address stress and anxiety among adolescents.

Berghs et al. (2022) drama therapy as an experiential form of psychotherapy that utilizes drama and theater processes and is categorized as one of the creative arts therapies alongside art therapy, music therapy, and dance and movement therapy. The study established that there was a positive effect of drama therapy, a creative arts intervention, on overall psychosocial problems in children and adolescents, including a decrease in social anxiety and posttraumatic stress. Khosla and Sharma (2025) employed creative artistic methods, and showed that art therapy significantly reduced adolescents' (majorly those aged 8 to 18) levels of anxiety and stress, while also improving their psychological well-being. Aggarwal (2021) established that art and music therapy can significantly reduce stress and anxiety levels in adolescents by lowering cortisol and increasing dopamine production.

Although conventional psychological interventions such as counseling, cognitive-behavioral approaches, and medication-based approaches have been mostly used and accepted, and the consistent use of these interventions remain challenging among adolescents. Thus, there is a growing interest in the grey approaches of creative arts interventions, including visual arts, music, drama, dance, creative writing, and other artistic approaches. These approaches can be used as alternative or complementary techniques for reducing adolescents' stress and anxiety. Creative arts interventions are becoming recognized with their potentials of enhancing emotional expression, self-awareness, coping skills, resilience, and psychological wellbeing. Despite the increasing attention, there is limited evidence with respect to their effectiveness, implementation approaches, and suitability for reducing stress and anxiety among adolescents. Thus, this study seeks to explore creative arts interventions' effectiveness for reducing stress and anxiety among adolescents. The findings seek to provide answers to the following questions:

1. What are the stressors or stress factors among adolescents?
2. What are the factors determining anxiety among adolescents?
3. What creative arts interventions are used for reducing stress among adolescents?
4. What creative arts interventions are used for reducing anxiety among adolescents?
5. What implementation strategies are adopted in delivering creative arts intervention among adolescents?

II. Methodology

This study adopts the systematic review design, which is a form of qualitative review style that allows for structured synthesis of the literature in a domain or area (Schut et al., 2024). This design was considered owing to its credibility, repeatability, and structured approach. It is an adopted design as it provides clear and illustrative guidelines, which enhance the reliability of the results. The literature search was conducted in series of databases, which are in the areas of health and medical. The databases consulted include EBSCOhost Health Sciences Research Database, which include MEDLINE, Science Direct, CINAHL Plus, PsycINFO, Academic Search Premier, and Web of Science. Focusing the literature search in these databases facilitate fast and efficient access to the wide-ranging and up-to-date evidence with respect to the use of creative arts interventions for reducing stress and anxiety among adolescents (Atkinson & Cipriani, 2018).

Using the appropriate keywords and search terms would enhance the chances of retrieving relevant literature. The Sample, Phenomenon of Interest, Design Evaluation, and Research type (SPIDER) search strategy was used to consult the databases. The SPIDER strategy (see Table 1) is appropriate when a study wants to find mixed-method research or qualitative articles, which is why it was considered for this study since the study focused on searching for only mixed-methods or qualitative research (Hammarberg et al., 2016). This is because the study wants in-depth and qualitative evidence on the use of creative arts interventions for reducing stress and anxiety among adolescents. Meanwhile, this review adopts Boolean operators of 'AND' and 'OR' to widen the search scope in order to ascertain robust evidence (Schut et al., 2024). The purposeful omission of Boolean operator 'NOT' was to eliminate the chances of getting required literature from the literature search. Moreover, the truncation sign (*) was used in the search strategy to suggest words that share the same base word with interoperability frameworks. This reduces the need for several searches that may be time-consuming.

Table 1: SPIDER Tool

SPIDER	Content
Sample	Adolescents
Phenomenon of Interest	Creative arts interventions
Design	Published literature of both qualitative and mixed-methods research
Evaluation	Effectiveness of creative arts intervention on reducing stress and anxiety
Research type	Qualitative and mixed methods research

Source: Author's fieldwork (2026)

The SPIDER framework ensured a structured approach to understanding the effectiveness of creative arts interventions on stress and anxiety among adolescents. Using the SPIDER tool in the search query produced a large number of hits/results. Subsequently, inclusion and exclusion criteria were introduced, which appraise the search results to produce only the most relevant studies to the review (see Table 2). The criteria considered in the selection process of the final selected articles include studies published between 2016 and 2026, removal of duplicated publications, removal of literature published in languages other than English language, primary research only, full-text articles, and mixed-methods and qualitative research. Using these criteria, the final selected literature is fifteen (15) articles.

Table 2: Inclusion and Exclusion Criteria

Inclusion and exclusion criteria	No. of hits	Justifications for search criteria
Studies published between the years 2016-2026	421	This is to ensure that only recent evidences are used in the answering the research question.
Duplicate publications removed	395	This is to avoid redundancy in the retrieved literature
Literature published in English language	382	This is to ensure that all the literature are in understandable language to allow analysis
Primary research only	174	This is to have only original primary research findings with respect to the research
Full-text only	35	Full-text allows critical review and analysis of the literature
Qualitative or mixed-methods research only	15	This is to analyze research findings that provide deeper understanding of experience, phenomenon, and context.

Source: Author's fieldwork (2025)

Meanwhile, the data collection process was ensured in similar structured manner through Preferred Reporting Items for Systematic Review and Meta-analyses (PRISMA) (see Fig. 1). The framework is appropriate for systematic review studies, which is one this study adopted. Meanwhile, the framework has four (4) phases, which include identification, screening, eligibility, and included. In the initial search of the different databases, a total of 421 items were extracted from the different databases. After this, duplications were checked and only sixty-two (62) items from the collected data were expunged as having duplicates in the returns. Next, the titles and abstracts of the articles were checked for relevance and whether they are relatable to the current study, and only sixty-six (66) articles were removed. After all these, the remaining items were examined with the inclusion and exclusion criteria that were set for the study. From this, only fifteen (15) articles were finally selected for this study. These fifteen (15) articles serve as the datasets for the study. Moreover, the collected data were extracted on a data extraction sheet (see Appendix I). Data analysis was conducted using the “a priori” thematic analysis.

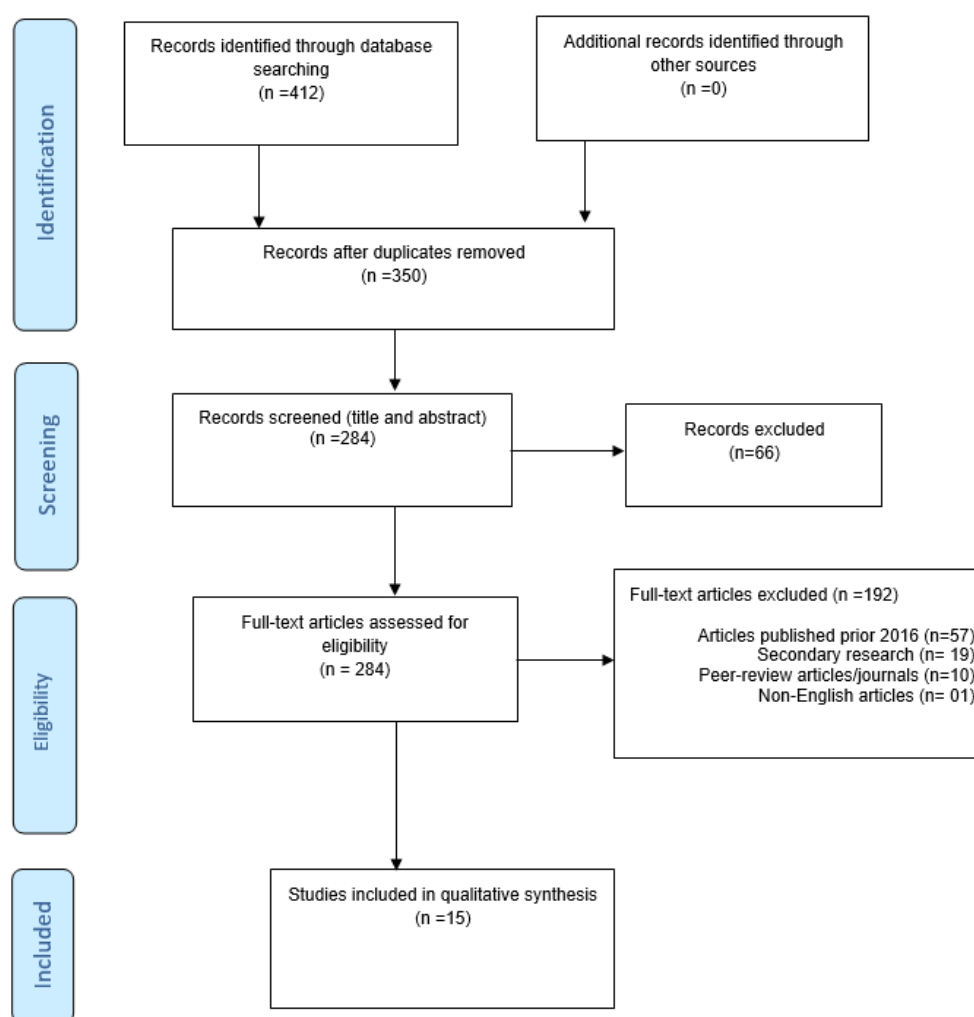


Figure 1: PRISMA Framework

III. Results and Discussion

On the research question one, which focused on stressors or stress factors among adolescents, the findings showed that academic, interpersonal, psychological, and lifestyle-related factors are prevalent among adolescents. It was shown that academic factor is the most dominant of these factors. Kim (2021) revealed that school work and career-related concerns are the common source of stress among adolescents, reporting a 54.7% stressors. However, interpersonal difficulties such as conflicts with peers and family demonstrated stronger relationships with negative psychological outcomes, which include depression and suicidal thoughts. Nagabharana et al. (2021) found that adolescents experienced stress from family conflicts, academic demands, peer relationships challenges, and concerns about social status. The study showed that these stressors were managed using acceptance, distraction activities, spirituality, and self-comforting strategies. Anjum et al. (2022) showed that sleep dissatisfaction, perceived overweight/obesity, and physical activity levels are stress symptoms.

Regarding the research question two, which focused on the factors determining anxiety among adolescents, it was revealed that biological, psychological, social, and environmental factors shaped adolescents' anxiety. Kahveci and Türner (2022) identified genetics, substance use, stress exposure, family attitudes, personality characteristics, and educational challenges as factors influencing anxiety disorders among adolescents. Using a global study of 59 countries, Islam et al. (2025) demonstrated that anxiety among adolescents is determined by contextual and environmental conditions. Bao and Han (2025) identified gender-related and social factors as factors determining anxiety among adolescents. Risk factors include poor sleep quality, poor peer relations, difficulty in completing tasks, and reluctance to seek help from others when faced with challenges. It was established that prolonged internet use is especially a factor determining female adolescents' anxiety.

On the research question three, which focused on the effectiveness of creative arts interventions used for reducing stress among adolescents, it was shown that creative arts interventions are used as non-clinical approaches to help adolescents understand, express, and regulate stress. Lindsey et al. (2018) focused on emotional expression, self-awareness, and coping development, finding that adolescents witnessed significant reduction in stress symptom. Feen-Calligan et al. (2020) found that art therapy interventions reduced stress among adolescents. The intervention encouraged engagement with artistic materials, problem-solving, coping strategies, and social interactions, which resulted in improved emotional regulation and reduced psychological distress. Simons et al. (2025) showed that weekly art-based interventions improved adolescents' emotional experiences, peer comfort, and overall wellbeing. It was revealed that art-making has a positive influence on adolescents' feelings of connection and personal improvement.

On the research question four, which focused on the effectiveness of creative arts interventions used for reducing anxiety among adolescents, the findings showed that creative arts are effective in reducing adolescents' anxiety, including social anxiety, general anxiety, trauma-related anxiety, and situational anxiety. Ugurlu et al. (2016) showed that a five-day art therapy intervention program among Syrian refugee children demonstrated significant reductions in trauma, depression, and trait anxiety symptoms. In a ten-week school-based theatre program, Felsman et al. (2019) revealed reductions in social anxiety alongside improvements in social skills, confidence, creative self-efficacy, and willingness to participate in social activities. Osborn et al. (2023) demonstrated that there is a significant reduction in anxiety symptom, demonstrating that the value of integrating arts activities into educational environments. Bifano and Tsze (2024) found that art therapy reduced anxiety among adolescents.

On the research question five, which focused on the implementation strategies adopted in delivering creative arts interventions among adolescents, it was revealed that the common strategy for the implementation of creative arts program is by integrating it into school programs. Felsman et al. (2019) implemented improvisational theatre as a school-based ten-week program, demonstrating that creative arts interventions can be incorporated into educational structures. Osborn et al. (2023) combined challenging school materials with arts-based activities to improve adolescents' anxiety and stress. Two (Lindsey et al., 2018; Simons et al., 2025) of the final selected studies adopted the group participation strategy by organizing arts group sessions among adolescents to support the reduction of their stress and anxiety. Beagle (2021) highlighted that arts-based approaches can expand learning spaces by incorporating emotional, symbolic, creative, and experiential forms of participation.

IV. Conclusion

The study concludes that creative arts interventions provide promising approaches for reducing adolescents' stress and anxiety by enhancing emotional expression, coping skills, social connection, and psychological resilience. Stress factors among adolescents include academic workload, family/parental conflicts, peer pressure, sleep deprivation, and self-perception. The study established that the factors determining anxiety among adolescents include biological and psychological characteristics, academic challenges, poor peer

relations, sleep difficulties, reluctance to seek help from other when faced with challenges, and excessive internet use (especially among female adolescents). The study recognized that creative arts interventions are effective for reducing stress among adolescents as they help them understand, express, and regulate stress. The study concluded that creative arts interventions are effective for reducing anxiety such as social anxiety, general anxiety, situational anxiety, and trauma-related anxiety. The study established that the common strategy for the implementation of creative arts program is by integrating it into school programs.

V. Implications

The study findings have implications for policy, practice, theory, and society. For the policymakers, the findings suggest that policymakers should develop comprehensive school mental health policies that address both academic and psychosocial factors. For instance, education authorities and ministries are responsible for youth development, which can promote structured arts-based wellbeing programs as part of adolescents' support systems. Moreover, policies should be designed and implemented that allow for collaborations among schools, healthcare professionals, counselors, families, and NGOs to establish accessible mental health promotion programs. There should also be policies that ensure training teachers and school counselors on delivering evidence-based creative arts interventions. This would help teachers and counselors identify adolescents at risk and provide early supportive interventions.

The findings have implications for professionals working with adolescents, which include teachers, school counselors, psychologists, therapists, and youth practitioners. The effectiveness of creative arts interventions demonstrates that practitioners can use artistic activities as practical tools for emotional expression, stress management, anxiety reduction, and coping development. Interventions such as art therapy, mask-making, improvisational theatre, mindfulness-based creative activities, and arts-literacy programs provide alternative methods for reaching adolescents who may struggle with traditional verbal counseling approaches. The findings implied that practitioners should adopt culturally appropriate, age-sensitive, and participatory approaches that allow adolescents to communicate emotions through creative expression. The findings suggest the importance of implementing interventions within supportive environments such as schools, where adolescents spend significant time.

The findings contribute to theoretical discourse on adolescents' mental health and creative arts interventions by underscoring the importance of expressive and experiential approaches in psychological support. Traditional cognitive and behavioral explanations of stress and anxiety among adolescents can be expanded by recognizing the role of creativity, emotional expression, social interaction, and meaning-making. The evidence from the study supports that creative arts activities can facilitate emotional regulation, self-awareness, resilience, and social connectedness. Creative arts interventions provide adolescents with opportunities to externalize internal experiences, develop coping mechanisms, and reconstruct positive personal narratives. Thus, future theoretical postulations of adolescents' mental health interventions should integrate creative processes as mechanisms through which psychological change occurs.

The findings demonstrate that adolescent stress and anxiety are influenced by broader social environments, including family relations, peer interactions, educational expectations, and community support systems. Therefore, the society has a role to play in creating supportive environments where adolescents can express emotional challenges without any stigma. The use of creative arts provides accessible and inclusive platforms for adolescents to communicate experiences, strengthen relationships, and develop confidence. Community can support adolescents' mental wellbeing by investing in youth arts program, community-based creative spaces, and awareness initiatives that promote mental health literacy. Families also need greater awareness of adolescent stressors and the importance of emotional support, communication, and encouragement.

REFERENCES

- [1]. Aggarwal, S. (2021). The effect of art and music on stress and anxiety levels in adolescents. *IAHRW International Journal of Social Sciences Review*, 9(3), 1-21.
- [2]. Agres, K. R., & Chen, Y. (2025). The impact of performing arts on mental health, social connection, and creativity in university students: A Randomised Controlled Trial. *BMC Public Health*, 25(1), 1628.
- [3]. Anderson, T. L., Valiauga, R., Tallo, C., Hong, C. B., Manoranjithan, S., Domingo, C., ...&Goldhaber, K. (2025). Contributing factors to the rise in adolescent anxiety and associated mental health disorders: A narrative review of current literature. *Journal of Child and Adolescent Psychiatric Nursing*, 38(1), e70009.
- [4]. Anjum, A., Hossain, S., Hasan, M. T., Christopher, E., Uddin, M. E., & Sikder, M. T. (2022). Stress symptoms and associated factors among adolescents in Dhaka, Bangladesh: Findings from a cross-sectional study. *BMC Psychiatry*, 22(1), 807.
- [5]. Anniko, M. K., Boersma, K., & Tillfors, M. (2019). Sources of stress and worry in the development of stress-related mental health problems: A longitudinal investigation from early-to mid-adolescence. *Anxiety, Stress, & Coping*, 32(2), 155-167.
- [6]. Arroll, B., & Kendrick, T. (2018). Definition of anxiety. *Primary Care Mental Health*, 20(2), 125-137.
- [7]. Bao, C., & Han, L. (2025). Gender difference in anxiety and related factors among adolescents. *Frontiers in Public Health*, 12, 1410086.
- [8]. Atkinson, L. Z., & Cipriani, A. (2018). How to carry out a literature search for a systematic review: a practical guide. *BJPsych Advances*, 24(2), 74-82.

- [9]. Beagle, A. (2021). Creative interventions: Integrating arts-based approaches in a university access programme. *Education as Change*, 25(1), 1-23.
- [10]. Berghs, M., Prick, A. E. J., Vissers, C., & van Hooren, S. (2022). Drama therapy for children and adolescents with psychosocial problems: A systemic review on effects, means, therapeutic attitude, and supposed mechanisms of change. *Children*, 9(9), 1358.
- [11]. Bifano, S. M., & Tsze, D. S. (2024). Effectiveness of art therapy interventions for treating pain and anxiety in adolescents in the emergency department. *Canadian Journal of Emergency Medicine*, 26(8), 564-569.
- [12]. Biggs, A., Brough, P., & Drummond, S. (2017). Lazarus and Folkman's psychological stress and coping theory. *The handbook of stress and health: A guide to research and practice*, 349-364.
- [13]. Chu, B., Marwaha, K., Sanvictores, T., Awosika, A. O., & Ayers, D. (2024). Physiology, stress reaction. In *StatPearls [Internet]*. StatPearls Publishing.
- [14]. Crocq, M. A. (2015). A history of anxiety: from Hippocrates to DSM. *Dialogues in Clinical Neuroscience*, 17(3), 319-325.
- [15]. Davies, W. (2025). Another Age of Anxiety: Psychological Distress and the 'Asset Economy'. *Theory, Culture & Society*, 42(5), 3-20.
- [16]. Eysenck, M. W. (2013). *Anxiety: The cognitive perspective*. Psychology Press.
- [17]. Feen-Calligan, H., Grasser, L. R., Debryn, J., Nasser, S., Jackson, C., Seguin, D., & Javanbakht, A. (2020). Art therapy with Syrian refugee youth in the United States: An intervention study. *The Arts in Psychotherapy*, 69, 101665.
- [18]. Feiss, R., Dolinger, S. B., Merritt, M., Reiche, E., Martin, K., Yanes, J. A., ...& Pangelinan, M. (2019). A systematic review and meta-analysis of school-based stress, anxiety, and depression prevention programs for adolescents. *Journal of Youth and Adolescence*, 48(9), 1668-1685.
- [19]. Felsman, P., Seifert, C. M., & Himle, J. A. (2019). The use of improvisational theater training to reduce social anxiety in adolescents. *The Arts in Psychotherapy*, 63, 111-117.
- [20]. Goodnite, P. M. (2014). Stress: A concept analysis. *Nursing Forum*, 49(1), 71-74.
- [21]. Hammarberg, K., Kirkman, M., & de Lacey, S. (2016). Qualitative research methods: When to use them and how to judge them. *Human Reproduction*, 31(3), 498-501.
- [22]. Högberg, B. (2021). Educational stressors and secular trends in school stress and mental health problems in adolescents. *Social Science & Medicine*, 270, 113616.
- [23]. Islam, M. A., Islam, T., Saha, B. R., Al Hassan, S., Hasan, N., & Rahman, M. A. (2025). Prevalence of and factors associated with anxiety among school going adolescents analysis from 59 countries. *Journal of Affective Disorders*, 120315.
- [24]. Kahveci, M., & Tüner, T. (2022). Anxiety disorder and psychological factors in adolescents. *International Scientific Journal Vision*, 7(2), 31-47.
- [25]. Khosla, A., & Sharma, P. (2025). Art therapy to deal with anxiety, depression, stress and psychological wellbeing among school children. *International Journal of Indian Psychology*, 13(1), 510-523.
- [26]. Kim, K. M. (2021). What makes adolescents psychologically distressed? Life events as risk factors for depression and suicide. *European Child & Adolescent Psychiatry*, 30(3), 359-367.
- [27]. Kültz, D. (2020). Defining biological stress and stress responses based on principles of physics. *Journal of Experimental Zoology Part A: Ecological and Integrative Physiology*, 333(6), 350-358.
- [28]. Levitt, E. E. (2015). *The psychology of anxiety*. Routledge.
- [29]. Lin, J., & Guo, W. (2024). The research on risk factors for adolescents' mental health. *Behavioral Sciences*, 14(4), 263-287.
- [30]. Lindsey, L., Robertson, P., & Lindsey, B. (2018). Expressive arts and mindfulness: Aiding adolescents in understanding and managing their stress. *Journal of Creativity in Mental Health*, 13(3), 288-297.
- [31]. Lu, S., Wei, F., & Li, G. (2021). The evolution of the concept of stress and the framework of the stress system. *Cell Stress*, 5(6), 76-96.
- [32]. Martin, L., Oepen, R., Bauer, K., Nottensteiner, A., Mergheim, K., Gruber, H., & Koch, S. C. (2018). Creative arts interventions for stress management and prevention—a systematic review. *Behavioral Sciences*, 8(2), 28-42.
- [33]. Nagabharana, T. K., Joseph, S., Rizwana, A., Krishna, M., Barker, M., Fall, C., ...& Krishnaveni, G. V. (2021). What stresses adolescents? A qualitative study on perceptions of stress, stressors and coping mechanisms among urban adolescents in India. *Wellcome Open Research*, 6, 106.
- [34]. Narmandakh, A., Roest, A. M., de Jonge, P., & Oldehinkel, A. J. (2021). Psychosocial and biological risk factors of anxiety disorders in adolescents: A TRAILS report. *European Child & Adolescent Psychiatry*, 30(12), 1969-1982.
- [35]. Osborn, T. L., Ndeti, D. M., Sacco, P. L., Mutiso, V., & Sommer, D. (2023). An arts-literacy intervention for adolescent depression and anxiety symptoms: Outcomes of a randomised controlled trial of Pre-Texts with Kenyan adolescents. *EClinicalMedicine*, 66.
- [36]. Prior, L. A. (2024). *What is Anxiety?* (Doctoral dissertation, University of Birmingham).
- [37]. Quinlan, R., Schweitzer, R. D., Khawaja, N., & Griffin, J. (2016). Evaluation of a school-based creative arts therapy program for adolescents from refugee backgrounds. *The Arts in Psychotherapy*, 47, 72-78.
- [38]. Robinson, A. M. (2018). Let's talk about stress: History of stress research. *Review of General Psychology*, 22(3), 334-342.
- [39]. Romeo, R. D. (2017). The impact of stress on the structure of the adolescent brain: Implications for adolescent mental health. *Brain Research*, 1654, 185-191.
- [40]. Schut, M., Adeyemi, I., Kumpf, B., Proud, E., Dror, I., Barrett, C. B., ...& Leeuwis, C. (2025). Innovation portfolio management for the public non-profit research and development sector: What can we learn from the private sector? *Innovation and Development*, 15(3), 689-707.
- [41]. Simons, K., Mendrek, A., Piché, J., Bernier, M., Léger-Goodes, T., & Malboeuf-Hurtubise, C. (2025). Promoting the mental health and well-being of vulnerable youth through art: an ethnographic evaluation of an art-based intervention for rural Canadian youth. *BMC Psychology*, 13(1), 182.
- [42]. Ugurlu, N., Akca, L., & Acarturk, C. (2016). An art therapy intervention for symptoms of post-traumatic stress, depression and anxiety among Syrian refugee children. *Vulnerable Children and Youth Studies*, 11(2), 89-102.

PPENDIX I

DATA EXTRACTION TOOL

Creative Arts Interventions for Reducing Stress and Anxiety among Adolescents: A Systematic Review

S/N	Research titles and authors	Aims	Study location	Methodology	Findings
1	What makes adolescents	The study aimed to	PR Korea	A computerized self-report questionnaire	- Among the major stressors, schoolwork/career was the most predominant

	psychologically distressed? Life events as risk factors for depression and suicide Kim (2021).	comprehensively investigate the distribution of major stress-causing factors and their correlates in a large population of adolescents.		was completed by 291,110 participating adolescents over a 4-year period using a cross-sectional study design.	(54.7%). However, the odds ratios for depressed mood and suicidal ideation were the highest in the stressor of conflict with peers (OR = 1.97 for depressed mood and OR = 2.00 for suicidal ideation), followed by family circumstances (OR = 1.77 and 1.94 for depressed mood and suicidal ideation, respectively). Conversely, schoolwork/career presented significantly lower odds ratios of 0.87 and 0.87 for depressed mood and suicidal ideation, respectively. - This study provides important information on psychological distress related to adolescents' mental health. Although school/career was the most prevalent source of psychological stress, the odds ratios for negative health outcomes of adolescents were higher in interpersonal problems such as conflicts with parents and peers and family circumstances.
2	What stresses adolescents? A qualitative study on perceptions of stress, stressors and coping mechanisms among urban adolescents in India Nagabharana et al. (2021).	The study explore the factors that contribute to psychological stress and coping strategies among adolescents in Mysore, India to inform the development of an intervention.	Mysore, India.	The study recruited 16 volunteers in Mysore, India including 6 younger (12-15 years; 3 girls) and 10 older adolescents/ young adults (17-25 years; 5 girls) using a purposive sampling technique. Older adolescents were recruited from ongoing birth cohort study, and the younger adolescents by word-of-mouth from the community. Individual in-depth interviews were carried out.	- Adolescents generally perceived stress in their daily lives. Family conflicts and academic pressures were the main triggers for increased stress. Issues around peer relationships, and social position were also important contributors. Adolescents reported that they had robust coping strategies. These included stress release through rationalizing and acceptance of the situation, distraction activities, spirituality, and self-comforting methods. However, they felt the need for further support from their family, and the society in general. In particular they expressed the need for a space to share their concerns and obtain guidance through healthy discussions with adults.
3	Stress symptoms and associated factors among adolescents in Dhaka, Bangladesh: Findings from a cross-sectional study Anjum et al. (2022).	The study aimed to estimate the prevalence of stress symptoms and the factors associated with these symptoms among secondary school-going adolescents in Bangladesh.	Bangladesh	A cross-sectional study using two-stage cluster sampling was conducted. A self-administered questionnaire was given to 2355 adolescents from nine secondary schools in Dhaka, Bangladesh. Questionnaire was used for data collection.	- Findings suggest that about 65% of adolescents experienced moderate stress symptoms, and about 9% experienced high-stress symptoms. Females (58.7%) suffered more from stress compared to males (41.3%). Age, grade, and residential setting were significantly associated with stress. Logistic regression estimates show that level of physical activity (AOR: 1.52; 95% CI: 1.26–1.84), sleep dissatisfaction (AOR: 1.33; 95% CI: 1.07–1.65), and perception of self as overweight/obese (AOR: 1.46; 95% CI: 1.13–1.89) were significantly associated with stress symptoms among adolescents.
4	Anxiety disorder and psychological factors in adolescents. Kahveci and Tüner (2022).	The study aimed to explore anxiety disorder and psychological factors in adolescents.	Malaysia.	The study adopted a qualitative research approach.	- As the state of anxiety causes positive situations in adolescents, this anxiety in which the physical and mental balance cannot establish causes psychological-based disorders. Anxiety disorder is one of them. Anxiety disorder occurs due to genetics, drugs, stress, and chemical substance use. It is a mental and physical disorder that the individual shapes without any relation to reality, has consequences on the adolescent, and affects the development and life functioning of the adolescent. These are panic attack disorder, generalized anxiety disorder, social anxiety disorder, obsessive-compulsive disorder, and separation anxiety disorder. Conditions such as the adolescent's not continuing his education, his family's attitude, and the adolescent's personality traits affect this situation.
5	Prevalence of and factors associated	The study examined	Global study	We analyzed data from a comprehensive	- The prevalence of anxiety is greater in the eastern Mediterranean region

	with anxiety among school going adolescents analysis from 59 countries. Islam et al. (2025).	anxiety prevalence and associated factors among adolescents globally.	including fifty-nine (59) countries.	survey, the Global School-based Student Health Survey (GSHS), involving 1179,937 adolescents aged 11-17 from 59 countries.	14.61 % (95 % CI: 14.59-14.63), while the lowest prevalence is found in the Southeast Asian region, 3.78 % (95 % CI: 3.72-3.83). The second highest prevalence was found in the African region, which is almost four-fold higher than that of the lowest southeast Asian region, 11.43 % (95 % CI: 11.41-11.46).
6	Gender difference in anxiety and related factors among adolescents Bao and Han (2025)	The purpose of the study was to analyze gender differences in anxiety levels among adolescents and to explore the influencing factors and pathways.		A total of 3601 adolescents were included in this study (age: 15.14±1.97 years; male: 48.76%). A questionnaire was used for data collection.	- The severity of anxiety in female was higher. Approaching graduation, lack of sleep, poor peer relationships, poor ability to complete tasks, and unwillingness to seek help when in a bad mood were risk factors for anxiety in both male and female adolescents. - Among female, prolonged Internet access is a risk factor for anxiety. The fit indices for the modified models were appropriate (male: GFI=0.999, IFI=0.996, TLI=0.976, CFI=0.995, AGFI=0.990, RMSEA=0.021, SRMR=0.016; female: GFI=0.997, IFI=0.990, TLI=0.971, CFI=0.990, AGFI=0.990, RMSEA=0.020, SRMR=0.018).
7	Expressive arts and mindfulness: Aiding adolescents in understanding and managing their stress. Lindsey et al. (2018).	The study contains an exploration of the use of mask-making and mindfulness training as components of an expressive arts group intervention designed to help youth understand and manage their stress.	The United States	The study adopted experimental research design. The participants were six, eighth-grade students at a public middle school. All students were selected by their school counselor based on the difficulties the students had in managing their stress	- Participants were assessed pre- and post-intervention and at a three-week follow-up on measures of self-efficacy, depression, anxiety, and stress. The group intervention resulted in significant self-reported reductions of anxiety and stress at the three-week follow-up.
8	An art therapy intervention for symptoms of post-traumatic stress, depression and anxiety among Syrian refugee children. Ugurlu et al.. (2016).	The study assessed the effect of an art therapy intervention on post-traumatic stress, depression and anxiety symptoms.	Turkey.	The Stressful Life Events (SLE) Questionnaire was used to measure stressful and traumatic experiences. The main outcome measures were UCLA Post-Traumatic Stress Disorder Parent version, Child Depression Inventory and State-Trait Anxiety Scale. After the baseline assessment, a five-day art therapy intervention, which is based on Skills for Psychological Recovery, was implemented.	- Findings of the study indicated that 60.3% (N = 35) of Syrian children who participated had high risk to develop post-traumatic stress disorder (PTSD) according to the SLE scale. The 23.4% of the children had PTSD symptoms while the 17.6% showed severe depression symptoms. Moreover, the 14.4% of the children showed severe levels of state anxiety symptoms and the 31.1% showed severe levels of trait anxiety symptoms. Findings of the study indicated that trauma, depression and trait anxiety symptoms of children were significantly reduced at the post-assessment. However, for state anxiety scores, significant differences between pre- and post-assessments did not appear. Therefore, it could be said that art therapy may be an effective method to reduce post-traumatic stress disorder, depression and trait anxiety symptoms among refugee children.
9	Art therapy with Syrian refugee youth in the United States: An intervention study. Feen-Calligan et al. (2020).	The purpose of the study was to identify and develop art therapy interventions that would reduce stress and severity of trauma-related psychopathology while providing coping skills for youth aged 17 and under.	The United States.	Psychological questionnaire data were collected to obtain subjective and objective changes in trauma-related symptoms over the course of the art therapy program.	- The findings incited a large statistically significant effect of art therapy on posttraumatic stress and separation anxiety (p = .05; d > .8) compared to no treatment controls, and moderate effects of art therapy on anxiety, panic disorder, and GAD (d > .5) compared to no treatment controls. The reduction in stress was reflected behaviorally in participants' positive affect, increased interest in art activities and increased coping (as evidenced through interaction with media, problem solving, participant initiated coping strategies and social support).

10	An arts-literacy intervention for adolescent depression and anxiety symptoms: Outcomes of a randomised controlled trial of Pre-Texts with Kenyan adolescents Osborn et al. (2023).	The study developed and tested Pre-Texts, an arts-literacy intervention that targets adolescent depression and anxiety, in Kenya.	Kenya.	The study conducted a universal RCT (Randomized Controlled Trial). Students from Kenyan high schools (N = 235, ages 13–19, 53.19% female) were randomized to either Pre-Texts or a study skills control intervention.	- Pre-Texts produced a greater reduction in depression ($d = 0.52$, 95% CI [0.19, 0.84]) and anxiety ($d = 0.51$, 95% CI [0.20, 0.81]) symptoms from baseline to 1-month follow-up compared to the control group. Similarly, in a sub-sample of participants with elevated depression and anxiety symptoms, Pre-Texts produced a greater reduction in depression ($d = 1.10$, 95% CI [0.46, 1.75]) and anxiety ($d = 0.54$, 95% CI [-0.07, 1.45]) symptoms. - The findings suggest that a brief arts-literacy intervention with challenging school material in a group setting, implemented as an afterschool program, can reduce depression and anxiety symptoms in adolescents in Sub-Saharan Africa. Future replication trials with larger sample sizes with extended follow-ups will help assess the strength and sustainability of these effects.
11	The use of improvisational theater training to reduce social anxiety in adolescents Felsman et al. (2019).	The study examined whether participating in a school-based improvisational theater program predicts reductions in symptoms of social anxiety.	The United States.	A total of 268 middle and high school students who participated in a ten-week school-based improvisational theater program completed surveys in a single group pre/post design.	- Adolescents who screened positive for social phobia at the beginning of class reported reduced symptoms of social anxiety at post-test. This change predicts increases in social skills, hope, creative self-efficacy, comfort performing for others, and willingness to make mistakes, along with marginal decreases in symptoms of depression. Given that no prior study has examined school-based improvisational theater training and its relationship to social anxiety, this work offers an important early contribution to the empirical literature on improvisation and mental health. School-based improvisational theater training offers an accessible, non-clinical alternative for addressing social anxiety problems among adolescents.
12	Effectiveness of art therapy interventions for treating pain and anxiety in adolescents in the emergency department. Bifano and Tsze (2024).	The study evaluated the effectiveness of art therapy in reducing pain and anxiety in adolescents with painful conditions treated in the Emergency Department (ED).	The United States.	The study conducted a prospective pilot study of patients 12–18 years old presenting with a painful condition to a tertiary-care children's hospital ED.	- We enrolled a convenience sample of 50 patients. Mean duration of art therapy was 34.7 min. Mean baseline pain was 6.2 and decreased by 23.2% (95% CI 14.9–31.5) and 28.6% (95% CI 9.2–48), immediately after and 1 h after art therapy completion, respectively. - Mean baseline anxiety was 48 (moderate) and decreased to 38 (low) and 43 (moderate) at the same time points, respectively. Forty-eight patients (96%) reported feelings of relaxation, decreased pain intensity, and/or empowerment (e.g., "Very relaxing"; "I didn't feel as much pain"; "Really showed my emotions"; "A way to explain to doctors what I'm feeling and what parts hurt").
13	Evaluation of a school-based creative arts therapy program for adolescents from refugee backgrounds. Quinlan et al. (2016).	The study provided a controlled trial of creative arts therapy to address the psychosocial needs of students from refugee backgrounds.	Australia	Forty-two students participated in a therapy trial, comprising an creative arts group and control group. Mental health and behavioral difficulties were assessed pre and post intervention. Hopkins Symptoms Checklist-25 (HSCL-25) and the Strengths and Difficulties Questionnaire (SDQ) were used to assess wellbeing.	- Findings suggested an effect for a reduction in behavioural difficulties for the treatment group. A significant reduction in emotional symptoms was found for the treatment group. Findings provide empirical support for school-based creative arts therapy programs specific to refugee young people. -
14	Promoting the mental health and	The purpose of the study was to	Quebec, Canada	27 youth from Quebec, Canada, aged 10–12	- The majority of students reported enjoying the intervention, many stating it had

	well-being of vulnerable youth through art: an ethnographic evaluation of an art-based intervention for rural Canadian youth Simons et al. (2025).	examine the experiences and preliminary impact of an art-based intervention with students in rural communities.		took part in a weekly art-based intervention for 7 weeks that was designed to cater to their unique needs. An ethnographic approach was used to examine the implications this intervention had on students, particularly their mental health and well-being. Thematic analysis was used to examine the data.	a positive impact on their lives. For example, various students reported that the intervention made them feel more comfortable amongst their peers and program staff. Students also reported feeling positively during art-making and expressed interest in taking part in follow-up research. - Overall, positive experiences with the present intervention support existing literature regarding the effectiveness of art-based methods for youth populations.
15	Creative interventions: Integrating arts-based approaches in a university access programme. Beagle (2021)	The study demonstrates that when integrated into teaching and learning, arts-based approaches expand the capability of the curriculum to achieve more equitable and accessible participation.	South-Africa.	The study used an action research approach in the study to investigate how creativity and arts-based practices might instil experiences of empowerment and agency in students in the classroom.	- The findings suggest that culturally relevant arts-based approaches play a legitimate and vital role in expanding the pedagogic space in order to foster embodied learning opportunities that acknowledge and include non-linear, somatic, visceral, emotional and symbolic dimensions. Arts-based methods advance transformative agendas and support learning in the current higher education (extended programme) context. The study involves an actionable intervention that uses arts-based methods to present the Workplace Preparation module. Arts-based activities and lesson plans are devised for integration into the existing formal programme and can be used and adapted as a resource for lecturers in the Workplace Preparation Department.