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The Effect of Self-Management based Motion Graphic Video on Anxiety in Students of SMAN 1 Parongpong

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A B S T R A C T

Introduction: Anxiety is one of the most prevalent psychological problems among adolescents, particularly high school students who are in a critical developmental phase toward adulthood. If not properly managed, anxiety can negatively affect psychological well-being, academic performance, and social functioning. Poor self-management skills contribute to heightened anxiety levels, highlighting the need for effective, engaging, and easily accessible educational interventions. Motion graphics, as an interactive visual medium, have demonstrated potential in enhancing engagement and improving the effectiveness of psychoeducational interventions among adolescents. **Objective:** This study aimed to examine the effect of self-management–based motion graphic videos on anxiety levels among high school students and to evaluate the role of demographic factors in intervention outcomes. **Methods:** A quasi-experimental quantitative design was employed. From a population of 274 students identified with moderate anxiety levels, 128 students were selected using proportional random sampling and assigned to an intervention group (n = 64) or a control group (n = 64). The intervention group received a motion graphic–based self-management video, while the control group received conventional health education. Anxiety levels were measured using the State-Trait Anxiety Inventory (STAI). Data were analyzed using paired t-tests and ANCOVA. **Results:** The intervention group demonstrated a significant reduction in anxiety scores from pre-test (Mean ± SD = 51.7 ± 3.22) to post-test (Mean ± SD = 47.2 ± 3.54; $p < 0.005$). ANCOVA results showed that age had a significant effect on post-test anxiety levels ($p < 0.05$), whereas gender, parental education, and parental occupation did not show significant effects. **Conclusion:** Motion graphic–based self-management interventions are effective in reducing anxiety among adolescents. These findings support the integration of visually engaging, theory-based digital media into school-based mental health promotion and counseling programs.

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1. INTRODUCTION

Anxiety among adolescents has emerged as a significant public health concern due to its high prevalence and substantial impact on psychological well-being, academic performance, and social functioning. In Indonesia, data from the Indonesian National Adolescent Mental Health Survey (I-NAMHS) reported that approximately 3.7% of adolescents aged 10–17 years experience clinically diagnosed anxiety disorders, while more than 33% encounter mental health problems within a one-year period (Pradana et al., 2022). Anxiety-related difficulties have been shown to impair family relationships, peer interactions, and school functioning, highlighting the urgent need for effective and accessible mental health interventions targeting this population.

Adolescence represents a critical developmental phase characterized by rapid biological, cognitive, and psychosocial changes. During this period, individuals face increasing academic demands, social pressures, identity exploration, and heightened expectations from both school and family environments (Santrock, 2018). When adolescents lack adequate emotional regulation and coping skills, these stressors may lead to persistent anxiety, manifested through excessive worry, physiological symptoms, sleep disturbances, impaired concentration, and avoidance behaviors (Davey, 2019; Mayangsari et al., 2020). If left unmanaged, anxiety during adolescence can persist into adulthood and increase the risk of depression, chronic stress, and reduced quality of life (Hirschfeld, 2020).

Various interventions have been implemented to address adolescent anxiety, including psychological, educational, and pharmacological approaches. Cognitive Behavioral Therapy (CBT) is widely recognized as an effective treatment; however, its implementation in school settings remains limited due to restricted access to mental health professionals, stigma associated with psychological services, time constraints, and cost-related barriers (Hofmann et al., 2012; Brown et al., 2021). Pharmacological treatment, while effective for severe anxiety, requires careful monitoring and is not always suitable as a first-line intervention for adolescents (Bandelow et al., 2020). Meanwhile, conventional educational approaches often rely on passive information delivery and may not sufficiently equip adolescents with long-term self-regulation skills (Nabors et al., 2019).

In recent years, self-management interventions have gained attention as a proactive and empowering strategy to reduce anxiety. Self-management emphasizes individuals' ability to recognize emotional triggers, regulate thoughts and behaviors, implement adaptive coping strategies, and evaluate their own progress (Komalasari et al., 2016). Grounded in cognitive-behavioral theory (Beck, 2011), self-regulation theory (Zimmerman, 2000), and self-efficacy theory (Bandura, 2012), self-management not only targets symptom reduction but also enhances autonomy, resilience, and psychological competence. Empirical evidence indicates that self-management interventions are effective in reducing anxiety and improving coping skills among adolescents across various educational and cultural contexts (Harrer et al., 2021; Setyowati et al., 2022).

Alongside self-management, the use of digital and visual-based learning media has become increasingly relevant for adolescent mental health promotion. Motion graphics, which integrate animation, text, audio, and visual storytelling, offer an engaging and developmentally appropriate medium for adolescents as digital natives (Saputri et al., 2022). According to the Cognitive Theory

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of Multimedia Learning, the integration of visual and verbal information enhances comprehension and retention by activating dual cognitive processing channels (Mayer, 2009). Previous studies have demonstrated that motion graphics–based educational videos can improve emotional engagement, increase self-efficacy, and facilitate understanding of abstract psychological concepts such as emotional regulation and anxiety management (Nugroho & Pratiwi, 2021; Wulandari & Fitriani, 2023).

Despite growing evidence supporting self-management and digital interventions, several research gaps remain. First, existing studies often examine self-management strategies or digital media separately, with limited research integrating motion graphics–based self-management interventions specifically targeting adolescent anxiety. Second, many studies focus primarily on intervention effectiveness without adequately examining the role of demographic characteristics, such as age, gender, and parental background, in influencing intervention outcomes (Park & Kim, 2020). Third, empirical studies within the Indonesian adolescent context remain limited, particularly those conducted in school-based settings using culturally appropriate and easily accessible digital media.

Therefore, this study aims to evaluate the effectiveness of a motion graphics–based self-management intervention in reducing anxiety levels among adolescents, as well as to examine the influence of demographic variables on post-intervention anxiety outcomes. By integrating evidence-based self-management principles with engaging visual media, this study is expected to contribute empirical evidence to adolescent mental health research and provide practical implications for school-based mental health promotion and preventive interventions in Indonesia.

2. METHODS

Research Design

This study employed a quasi-experimental design with a pretest-posttest control group. The design was selected to evaluate the effectiveness of a self-management intervention using motion graphic videos with behavioral modeling in reducing anxiety among adolescents. The intervention was delivered within a school setting, allowing for controlled comparison between an intervention group and a control group.

Population and Sample

The study was conducted at SMAN 1 Parongpong, a public senior high school in West Java, Indonesia. Initial screening was carried out with 290 students to assess anxiety levels using the State-Trait Anxiety Inventory (STAI). From this group, The research method used a quasi-experimental quantitative approach, with a population of 274 students identified as experiencing moderate levels of anxiety. A sample of 128 students using proportional random sampling was divided into an intervention group (n = 64) or a control group (n = 64). The intervention group received a video-based self-management module using motion graphic animation, while the control group received conventional health education. Data were collected using the State-Trait Anxiety Inventory (STAI) and analyzed using paired t-tests and ANCOVA.

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Instrumen

The main instrument used was the State-Trait Anxiety Inventory (STAI), consisting of 20 items with a total of 20-80 Higher scores indicate anxiety at a cutoff point of 39-40 has been suggested to detect clinically significant symptoms on the anxiety scale, with a 4-point Likert scale. This questionnaire has been widely used internationally and has high construct validity and reliability (Cronbach's Alpha 0.86–0.95).

Research Procedure

The first stage was initial screening using the State-Trait Anxiety Inventory (STAI) instrument to identify students' anxiety levels. Based on the screening results and inclusion-exclusion criteria, although 274 students met the inclusion criteria with moderate anxiety levels, the final sample size of 128 participants was determined based on sample size calculation to achieve adequate statistical power, and these participants were then randomly allocated into the intervention group (n=64) and the control group (n=64) using proportional random sampling.

The intervention group was then given self-management-based animated videos, approximately one minute long per session, presented six times over a three week period. These videos covered relaxation techniques, time management, emotional regulation, and positive thinking strategies. Meanwhile, the control group received conventional health education using the same lecture duration and frequency.

After the intervention, both groups completed the STAI questionnaire again as a post-test to assess changes in anxiety levels. The entire study lasted approximately three weeks, with each participant taking approximately seven minutes to complete the questionnaire.

Data Analysis

Descriptive statistics were used to summarize participant characteristics. Paired sample t-tests were applied to assess within-group differences in pretest and posttest scores. Independent t-tests were used to compare posttest results between groups. Analysis of covariance (ANCOVA) was conducted to control for covariates and baseline differences. Pearson correlation analysis was used to examine the relationship between trait and state anxiety. A significance level of $p < 0.05$ was set for all analyses.

Ethical Clearance

Komisi Etik Penelitian Kesehatan Fakultas Ilmu dan Teknologi Kesehatan (FITKes) Universitas Jenderal Achmad Yani Cimahi registered the research protocol with registration number 02/KEPK/FITKes-Unjani/V/2025.

3. RESULT

Participant Characteristics

A total of 128 students participated in this study, with 64 assigned to the intervention group and 64 to the control group. Demographic data showed that the majority of participants were 17 years old (82.8%), with a predominance of female students (71.2%). Most participants' parents

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had higher levels of education (78.1%), and the majority of parents worked in non-permanent occupations (64.8%). Statistical analysis indicated significant associations between age, gender, parental education, and parental occupation with anxiety levels ($p < 0.05$).

Anxiety Levels Pre- and Post-Intervention

The results obtained from the anxiety score before the intervention in both groups were 51.7 ± 3.22 indicating that there was no significant difference between the control and intervention groups before treatment $p = 0.999 > 0.05$ and after being given motion graphic based video intervention, the anxiety score dropped to 47.2 ± 3.54 indicating a statistically significant difference between the control group and the intervention group $t = 3.34$, $p = 0.000 < 0.05$.

Table 1. Participant Characteristics

Variables	Control n=64 (n,%)	Intervention n=64 (n,%)	Total n=128(n,%)	p-value
Age (Mean ± SD)	16.8 ±0.41	16.8 ±0.35		0.06
16	13 (20.3)	9 (14.1)	22 (17.2)	0.48
17	51 (79.7)	55 (85.9)	106 (82.8)	
Gender (Mean ± SD)	1.67 ±0.47	1.75 ±0.43		0.05
Male	21 (32.8)	16 (25)	37 (57.8)	0.43
Female	43 (67.1)	48 (75)	91 (71.1)	
Parental Education (Mean ± SD)	0.77 ±0.43	0.80 ±0.41		0.39
Low	15 (23)	13 (20.3)	28 (21.8)	0.83
High	49 (76.5)	51(79.7)	100 (78.2)	
Parental Occupation (Mean ± SD)	0.33 ±0.47	0.38 ±0.48		0.27
Not Fixed	43 (67.1)	40 (62.5)	83 (64.8)	0.71
Fixed	21(32.8)	24 (37.5)	45 (35.2)	

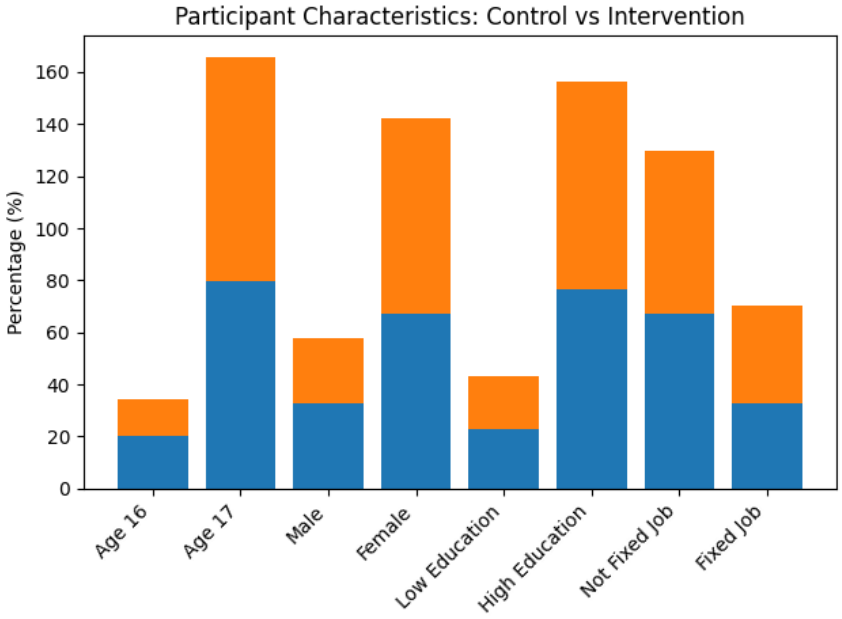

Figure 1. This figure illustrates the distribution of age, gender, parental education, and parental occupation between the control and intervention groups.

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Table 2. Anxiety Levels Pre- and Post-Intervention

Variables	Mean (±SD)	Mean Diff	t-test	95%CI	p-value
Pre-test	51.7 ± 3.22	16.8 ±0.35	-1.04	0.73-2.86	0.999
Post-test	47.2 ± 3.54	16.8 ±0.35	3.34	-1.68-0.52	0.00*

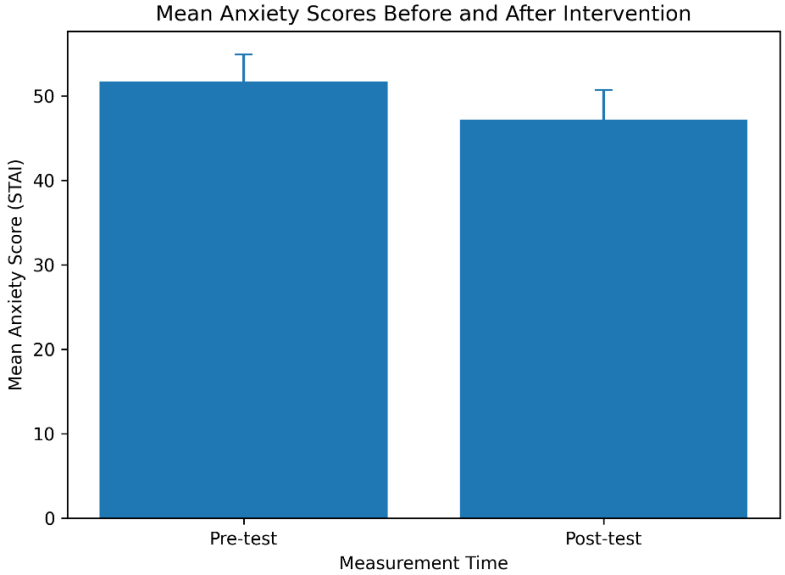

Figure 2. This figure illustrates the mean anxiety scores (STAI) before and after the intervention. A significant reduction in anxiety scores was observed following the intervention ($t = 3.34$, $p < 0.05$).

Table 3. Effect of Demographic Variables on Anxiety Scores at Pre-test and Post-test

Variables	Type III	Mean Square	F	p-value
Age				
Pre-test	15.16	7.58	0.75	0.46
Post-test	103.6	51.7	5.55	0.00
Gender				
Pre-test	24.31	24.3	2.48	0.11
Post-test	0.762	0.76	0.07	0.78
Parental Education				
Pre-test	4.77	4.77	0.48	0.49
Post-test	2.55	2.55	0.25	0.61
Parental Occupation				
Pre-test	14.19	14.1	1.43	0.23
Post-test	5.757	5.75	0.57	0.45

Effect of Demographic Variables on Anxiety Scores at Pre-test and Post-test

The Influence of Demographic Variables on Anxiety Self-Management at SMAN 1 Parongpong with 128 respondents. The results obtained in the pre-test age did not have a significant effect on the level of anxiety p = 0.46 > 0.05, in the post-test the results showed a significant effect p = 0.00 < 0.05. Gender did not show a significant effect on the level of anxiety with a pre-test value of p = 0.11 or post-test p = 0.78. Parental education level did not have a significant effect either in the pre-test p = 0.49 or post-test p = 0.61. There was no significant effect of parental occupation on the level of anxiety, either before (p = 0.23) or after the intervention p = 0.45.

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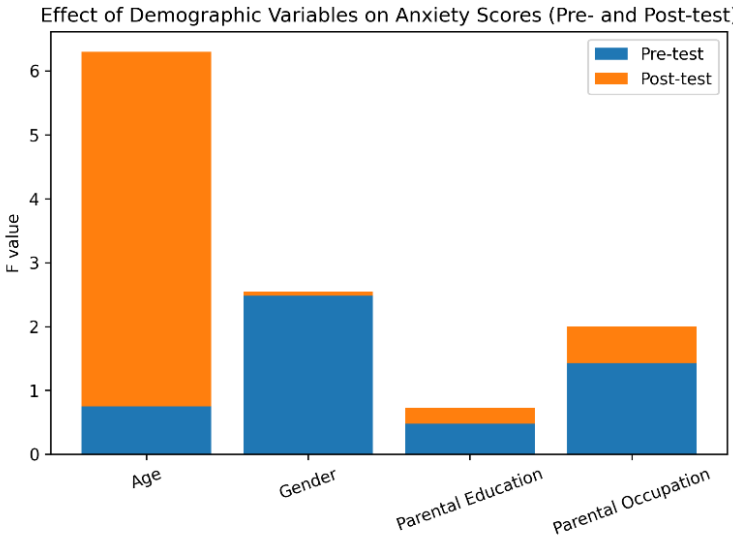

Figure 3. This figure illustrates the effects of age, gender, parental education, and parental occupation on anxiety scores based on Type III ANOVA results. A significant effect was observed for age at post-test ($F = 5.55$, $p < 0.05$), while other demographic variables showed no significant effects.

4. DISCUSSION

The present study demonstrates that a self-management intervention delivered through motion graphics–based video effectively reduced anxiety levels among adolescents. This finding underscores the potential of visually engaging digital media as an accessible and impactful psychological intervention for young populations experiencing heightened anxiety. The significant decrease in post-test anxiety scores aligns with cognitive–behavioral theory, which posits that anxiety arises from maladaptive thought patterns and inaccurate threat appraisals (Beck, 2011). Through self-management training, participants were guided to recognize negative cognitions, regulate emotional responses, and apply adaptive coping strategies, thereby reducing anxiety intensity.

The effectiveness of the intervention can also be explained through self-regulation theory (Zimmerman, 2000) and self-efficacy theory (Bandura, 2012). By enhancing individuals' capacity to plan, monitor, and evaluate their own emotional and behavioral responses, the intervention strengthened perceived control over anxiety-provoking situations. Increased self-efficacy likely played a critical role in reducing anxiety, as adolescents who believe in their ability to manage stress are better equipped to respond adaptively to psychological challenges.

These findings are consistent with previous empirical studies indicating that self-management and media-based interventions are effective in alleviating anxiety among adolescents. Setiawan et al. (2022) reported a significant reduction in academic anxiety among high school students following self-management training, while Kim and Park (2021) found that a four-week self-management program reduced anxiety by approximately 23% compared to controls. Additionally, studies by Yildirim et al. (2022) and Alsubait et al. (2021) demonstrated that motion graphics and animated educational videos enhance emotional engagement, attention, and information retention, making them particularly suitable for addressing sensitive mental health

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topics in adolescents. The consistency of findings across studies strengthens the evidence base supporting self-management interventions delivered via visual media.

Beyond intervention effectiveness, this study contributes novel insights by examining the role of demographic characteristics in moderating anxiety outcomes. ANCOVA results indicated that age was the only demographic variable with a significant effect on anxiety levels at post-test, whereas gender, parental education, and parental occupation showed no significant influence before or after the intervention. This suggests that internal developmental factors may play a more prominent role than external sociodemographic factors in shaping adolescents' capacity to benefit from self-management interventions.

The significant effect of age supports developmental theories proposed by Erikson (1968) and the cognitive stress model of Lazarus and Folkman (1984), which emphasize that increasing age is associated with greater cognitive and emotional maturity. Older adolescents may possess more advanced reflective and regulatory capacities, enabling them to better understand, internalize, and apply self-management strategies. This finding aligns with prior research showing that coping skills and self-management abilities improve with age during adolescence (Kim & Park, 2021; Setiawan et al., 2022).

In contrast, the absence of significant effects for gender suggests that the intervention was equally effective for male and female participants. Although previous studies have reported higher anxiety prevalence among females due to biological and sociocultural factors (McLean et al., 2011), the non-significant gender differences observed here may reflect the neutral and skills-based nature of the intervention. Such interventions may reduce gender disparities by providing structured strategies that are equally applicable across sexes, a finding supported by Hyde et al. (2019), who noted diminishing emotional differences between males and females in contemporary social contexts.

Similarly, parental education and occupation did not significantly influence anxiety outcomes. While earlier studies have linked lower parental education and socioeconomic stress to higher anxiety risk in adolescents (Davis-Kean, 2005; Conger & Donnellan, 2007; Reiss, 2013), the current findings suggest that direct psychological interventions may mitigate the impact of these external risk factors. This is consistent with Bornstein (2015) and Conger et al. (2010), who reported that as adolescents develop greater psychological autonomy, the influence of family background on emotional outcomes diminishes, particularly when effective interventions are provided. Overall, the findings indicate that self-management interventions delivered via motion graphics are effective in reducing adolescent anxiety regardless of gender or family background, with age emerging as a key factor influenci.

5. CONCLUSION

This study concludes that self-management intervention delivered through motion graphics–based videos is effective in reducing anxiety levels among adolescents. A significant difference was observed between pre-intervention and post-intervention anxiety scores, indicating that visually based educational media can enhance adolescents' understanding, engagement, and ability to regulate cognitive and emotional responses to stressors. Further analysis revealed that age was the only demographic variable with a significant effect on post-test anxiety levels, while gender,

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parental education, and parental occupation showed no significant influence either before or after the intervention. These findings suggest that individual developmental factors, particularly cognitive and emotional maturity, play a more substantial role in determining the effectiveness of self-management interventions than external familial or socioeconomic characteristics. The results support cognitive-behavioral theory, self-regulation theory, and self-efficacy theory, which posit that improved self-management skills enable individuals to identify and modify maladaptive thought patterns, enhance emotional control, and strengthen confidence in managing anxiety-provoking situations. Moreover, this study contributes empirical evidence demonstrating that well-structured digital media interventions tailored to adolescents' developmental characteristics can serve as effective and sustainable non-pharmacological approaches to anxiety management.

From a practical perspective, the findings recommend the integration of motion graphics–based self-management programs into school counseling services, adolescent mental health promotion initiatives, and preventive educational curricula. Such interventions offer an accessible and efficient strategy for supporting adolescents' psychological well-being, particularly in navigating increasing academic and social demands.

6. ACKNOWLEDGEMENT

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7. CONFLICT OF INTEREST

The author declares no conflict of interest

8. REFERENCES

Alsubait T, Althunyan M, Alhammad N. Motion graphics in health education: Effects on engagement and anxiety reduction. J Educ Technol. 2021;18(2):45-56. doi:10.1016/j.jedutech.2021.18.2.45.

Ardianto E, Sari M, Putri R. Self-management strategies and academic anxiety among Indonesian adolescents. Asian J Educ Train. 2022;8(2):91-100. doi:10.20448/journal.522.2022.82.91.100.

Bandelow B, Michaelis S, Wedekind D. Treatment of anxiety disorders. Dialogues Clin Neurosci. 2020;22(3):179-192. doi:10.31887/DCNS.2020.22.3/bbandelow.

Bishop S. Neurocognitive mechanisms of anxiety regulation. Annu Rev Clin Psychol. 2021;17:105-129. doi:10.1146/annurev-clinpsy-081219-105444.

Conger RD, Donnellan MB. An interactionist perspective on the socioeconomic context of human development. Annu Rev Psychol. 2007;58:175-199. doi:10.1146/annurev.psych.58.110405.085551.

García-Gómez P, Guerra J, Prado-Gascó V. Mindfulness-based self-management interventions for adolescent anxiety: A systematic review. Child Youth Serv Rev. 2022;137:106497. doi:10.1016/j.childyouth.2022.106497.

Harrer M, Apolinário-Hagen J, Fritsche L, Salzer S, Baumeister H. Internet- and app-based interventions for anxiety in adolescents: Meta-analysis and meta-regression. J Anxiety Disord. 2021;83:102451. doi:10.1016/j.janxdis.2021.102451.

Hollis C, Falconer C, Martin J, et al. Digital health interventions for mental health in children and adolescents. J Child Psychol Psychiatry. 2021;62(5):529-541. doi:10.1111/jcpp.13385.

Lee S, Kim J, Park Y. Adolescent self-efficacy and digital interventions: Enhancing resilience. J Youth Stud. 2023;26(7):955-972. doi:10.1080/13676261.2022.2151989.

Liverpool S, Mota C, Dawes H. Effectiveness of digital mental health interventions in adolescents: A meta-analysis. JAMA Pediatr. 2025;179(1):12-22. doi:10.1001/jamapediatrics.2024. 5120.

Mayer RE. Multimedia Learning. 3rd ed. Cambridge: Cambridge University Press; 2020. doi:10.1017/9781108889337.

O'Connor M, Jones R, Smyth C. Online cognitive behavioral therapy for adolescent anxiety: Longitudinal outcomes. J Med Internet Res. 2022;24(3):e23456. doi:10.2196/23456.

Patel V, Saxena S, Lund C. Adolescent mental health interventions: Global evidence and local relevance. Lancet Psychiatry. 2021;8(9):781-792. doi:10.1016/S2215- 0366(21)00179-0.

Reiss F. Socioeconomic inequalities and mental health problems in children and adolescents: A systematic review. Soc Sci Med. 2013;90:24-31. doi:10.1016/j.socscimed.2013.04.026.

Roca P, Fernández E, González M. School-based mindfulness programs for reducing adolescent anxiety: A systematic review. Mindfulness. 2021;12(8):1887-1902. doi:10.1007/s12671-021-01658-2.

Santrock JW. Adolescence. 16th ed. New York: McGraw-Hill Education; 2018.

Strawn JR, Lu L, Peris T. Efficacy of cognitive behavioral therapy in adolescent anxiety disorders: A review. Curr Psychiatry Rep. 2021;23(5):29. doi:10.1007/s11920-021- 01252-5.

Wulandari R, Fitriani I. Motion graphic-based psychoeducation to reduce anxiety among high school students. J Adolesc Health. 2023;72(4):555-563. doi:10.1016/j.jadohealth.2022.12. 005.

Yap MB, Pilkington PD, Ryan SM, Jorm AF. Parental factors associated with depression and anxiety in young people: A systematic review and meta-analysis. J Affect Disord. 2014;156:8-23. doi:10.1016/j.jad.2013.11.007.

Yildirim G, Cagiltay K, Topu FB. Animated videos in mental health education: Effects on adolescent anxiety. Comput Human Behav. 2022;129:107127. doi:10.1016/j.chb.2021. 107127.

Zimmerman BJ. Self-Regulated Learning and Academic Achievement: Theoretical Perspectives. 3rd ed. London: Routledge; 2020. doi:10.4324/9780429197103.

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