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Research Article

## Impact of Life Skill Training Program on Psychological Well-Being Among Adolescents: A Systematic Review and Meta-Analysis

D.S. Veerabhadra Swamy<sup>1</sup>, Uppu Praveen<sup>2\*</sup>, Dima Alkadri<sup>3</sup>, Murtada Mustafa Gabir Tia<sup>4</sup>, Eltayeb Abdelazeem Idress<sup>5</sup>, Gihan Mohamed Mohamed Salem<sup>6</sup>, Sudha Annasaheb Raddi<sup>7</sup>, Mohammed Fayez J Alharbi<sup>8</sup>

<sup>1</sup>Assistant Professor, College of Applied Medical Sciences, Nursing Department, University of Bisha, Bisha, Saudi Arabia. Email: [vsamy@ub.edu.sa](mailto:vsamy@ub.edu.sa), <https://orcid.org/0000-0001-6089-2715>,

<sup>2\*</sup>Lecturer, College of Nursing, All Indian Institute of Medical Sciences (AIIMS), Vijaypur, Jammu, & J&K, India-18412, Email: [uppupraveen@yahoo.com](mailto:uppupraveen@yahoo.com), [uppu.praveen@aiimsjammu.edu.in](mailto:uppu.praveen@aiimsjammu.edu.in),  
ORCID: <https://orcid.org/0000-0002-1148-8588>

<sup>3</sup>Department of Nutrition and Food Science, Faculty of Agriculture, Jerash University, Jerash, Jordan.  
Email: [d.alqaderi@jpu.edu.jo](mailto:d.alqaderi@jpu.edu.jo)

<sup>4</sup>Assistant Professor of Pediatric Nursing, College of Applied Medical Sciences, University of Bisha, Bisha, Saudi Arabia. Email: [ost.murtada@gmail.com](mailto:ost.murtada@gmail.com), ORCID: <https://orcid.org/0000-0003-1408-5386>.

<sup>5</sup>Assistant Professor, Nursing Department, College of Applied Medical Sciences, University of Bisha, Bisha, Saudi Arabia Email: [altayebabdo10@gmail.com](mailto:altayebabdo10@gmail.com)

<sup>6</sup>Assistant Professor, Department of Nursing, College of Applied Medical Sciences, University of Bisha, Bisha, Saudi Arabia. Email: [Jsalem@ub.edu.sa](mailto:Jsalem@ub.edu.sa)

<sup>7</sup>Assistant professor, Nursing Department, College of Applied Medical Sciences, University of Bisha, Bisha, Saudi Arabia, Email: [suraddi@ub.edu.sa](mailto:suraddi@ub.edu.sa)

<sup>8</sup>Assistant Professor, College of Applied Medical Sciences, Nursing Department, University of Bisha, Bisha, Saudi Arabia. Email: [mfjharbi82@gmail.com](mailto:mfjharbi82@gmail.com), ORCID: <https://orcid.org/0000-0002-5049-4809>

**\*Corresponding Author:** Dr. Uppu Praveen,

<sup>\*</sup>Lecturer, College of Nursing, All Indian Institute of Medical Sciences (AIIMS), Vijaypur, Jammu, & J&K, India-184120, Email: [uppupraveen@yahoo.com](mailto:uppupraveen@yahoo.com), [uppu.praveen@aiimsjammu.edu.in](mailto:uppu.praveen@aiimsjammu.edu.in), ORCID: <https://orcid.org/0000-0002-1148-8588>

### ABSTRACT

**Background:** In the entire world, depression affects 121 million individuals. People with severe depression are more likely to commit suicide, and there are approximately 8, 50,000 suicides each year <sup>1</sup>. Amazingly, the prevalence of depression among children is rising at a rate of about 23% annually.

**Objective:** This review aims to establish the evidence pertaining to the impact of life skill training programs on psychological well-being among adolescents...

**Study design and methods:** Articles published in peer-reviewed journals were included in this review. Randomized control trials (RCTs) and non-randomized control trials (non-RCTs) consisting of Life skills training programs on mental health (Stress, anxiety, depression, and self-esteem) as an interventional group versus control/comparator group who were no intervention among adolescents were included in this systematic review. Databases such as PubMed, Science Direct, CINHAL plus, and Pro-Quest were systematically searched between 2011 and 2023. Using the Cochrane risk of bias tool, the methodological quality of the included studies was evaluated by two independent authors. Results we included 11 trials, involving 4841 adolescents. All trials measured the effects Life skills training programs on mental health (Stress, anxiety, and depression) as the main outcome and three trials measured the quality of life as the main outcome. 11 trials included for narrative synthesis showed a significant decrease in mental health (Stress, anxiety and depression) and considerable improvement in self-esteem in the interventional group than in the comparison group. Meta-analysis of 2 RCTs containing 361 subjects concluded a significant decline in anxiety ( $p < 0.0001$ ) and improvement in self-esteem

**Conclusion:** The evidence of this systematic review and meta-analysis supported that LSTP interventions help to improve self-esteem and decrease the symptoms of depression, anxiety, and stress among adolescent students.

**Keywords:** Life skills training programs, anxiety, depression and stress, adolescents

**\*Author for correspondence:** [uppupraveen@yahoo.com](mailto:uppupraveen@yahoo.com)

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## **Introduction:**

In the entire world, depression affects 121 million individuals. People with severe depression are more likely to commit suicide, and there are approximately 8, 50,000 suicides each year<sup>1</sup>. Amazingly, the prevalence of depression among children is rising at a rate of about 23% annually<sup>2</sup>. In contrast to the prior year (20%), the rate of depression increased to 28% and remained greater among industrialized nations. The prevalence rate of depression and the suicide rate vary widely across the globe<sup>3</sup>. The incidence of depression was lowest in China, at about 12%, while it was highest in India, at 36%<sup>1</sup>. Currently, 15% of depressed persons can commit suicide and 80% of those with depression are not receiving any kind of treatment<sup>4</sup>. In 1990, major depression ranked fourth among causes of Disability Adjusted Life Years (DALYs), and by 2020, it is predicted to move up to number two<sup>5</sup>. One in five young people in the general population and one in four young college students have a diagnosable psychiatric disorder<sup>6</sup>. College-bound students' emotional development and sense of self were evaluated, and it was discovered that emotionally mature students had higher self-esteem than those with low self-esteem<sup>7</sup>. High levels of self-criticism, low self-esteem, a sense of powerlessness over unfavorable circumstances, and severe cognitive distortion have all been linked to depression, according to another research study<sup>8</sup>. Higher levels of social support and self-esteem, in contrast, are the elements that contribute to the reduction in depression symptoms<sup>9,10</sup>. Self-worth and social support are important factors in preventing depression from getting worse<sup>11</sup>. Depression and self-efficacy are mutually exclusive<sup>12</sup>. Numerous studies have found a direct connection between high rates of depression and a variety of social, psychological, physical, and educational characteristics<sup>13</sup>. One of the reasons responsible for 10–20% of psychiatric issues in those under the age of 18 is poor social adjustment<sup>14</sup>.

Life skills are described by the World Health Organization as "abilities for adaptive and positive behavior that enable individuals to cope effectively with the posing challenges of life." The LST program's goals are to improve mental and social skills and develop creative people who can contribute new ideas to society (WHO, 1994)<sup>5</sup>. It comprises the cognitive,

psychosocial, and emotional areas of life. Developing life skills results in traits like self-worth, friendliness, and tolerance as well as action competence. Life skills are the aptitudes that support young people's mental health and competence as they deal with the realities of life<sup>15</sup>. Programs that focus on life skills successfully impart knowledge and abilities that improve social and personal skills (Botvin & Griffin, 2004)<sup>16</sup>. Teenagers' lives are becoming more complex as a result of coping with stress and a time of heightened potential; therefore, it is important to pay attention to their physiological, emotional, and sociocultural components<sup>17</sup>. The education system has undergone significant reform in recent years. The current situation in education systems attempts to challenge students' daily lives based on individual and societal needs; for this reason, life skills training has received more attention in recent years. The demands and difficulties of life are constantly changing. The education system by itself cannot fully address an individual's concerns; rather, broad-based and multi-pronged approaches are needed to enhance people's psychosocial competencies. Teenagers of this age group will be assisted in overcoming these challenges in life and achieving their goals through the provision of a life skill training program through its inculcation. The objective of this review is to establish the evidence pertaining to the impact of life skill training programs on psychological well-being among adolescents.

## **Methods:**

The authors followed Joanna Briggs Institute Manual for Evidence Synthesis (Guidance for authors to conduct systematic reviews)<sup>18</sup> and the PRISMA guidelines for the preparation of this systematic review and meta-analysis.<sup>19</sup>

## **Eligibility Criteria:**

### **Inclusion criteria**

The studies for this review were chosen based on the following criteria.

- Only articles published in peer-reviewed journals.
- studies available in electronic databases were considered.
- Study design: This review included randomized control trials and non-randomized control trials.
- Intervention:** (Life Skill Training) Self-awareness, Critical Thinking, Effective Communication,

Decision-making, Coping with Stress, Empathy, Creative Thinking, Interpersonal Relationships, and Problem-Solving were some of the 10 cores covered in the studies.

- e) **Setting:** In rural and urban areas, which include educational institutions and hostels.
- f) **Outcomes:** Studies were included only if they describe one or more of the mental health problems such as anxiety, stress, depression, and self-esteem.
- g) **Language:** Articles were only published in English.
- h) **Studies that have been referred to as "life skills training programs"** were included.

**Exclusion Criteria**

Conference abstracts, databases that simply include abstracts, books, and grey literature will be eliminated.

**Information Sources:**

Databases such as PubMed, Science Direct, CINHAL plus, and Pro-Quest were searched for the eligible trials reported between 2011 and 2023. In addition to this, a hand search of references was performed from related trials to identify the studies based on inclusion criteria.

**Search Strategy:**

The search strategy was developed comprehensively using keywords in congruence with PICO terms to identify the relevant studies by following keywords; life skills training AND mental health OR mental illness OR mental disorder OR psychiatric illness AND adolescents OR teenagers OR young adults OR teen OR youth. The title and abstract screening of the retrieved studies was done based on the inclusion criteria. Duplicate trials were removed by screening the title and abstracts using

Reference Manager (Zotero). The two authors (DSVS and UP) independently performed screening of the retrieved abstracts based on pre-determined inclusion criteria, followed by screening of full-text articles.

**Data Collection Process:**

Quantitative data of the included studies were extracted independently by two authors based on JBI experimental studies data extraction tool.<sup>20</sup> The data extraction form consisted of details such as author, year of publication, location, study type, sample size/group, participants type and age, intervention details and duration, outcome measures, instruments used, and study findings.

**Data Items:**

- a. **Participants:** Included adolescents (aged 13 to 19 years) across all type of genders, races, region, and country
- b. **Intervention:** Exploring the effectiveness of the Life Skill Training program (Life skills training program which includes ten cores such as Self Awareness, Critical thinking, Effective Communication, Decision Making, coping with stress, Empathy, Creative thinking, Interpersonal Relationships, Problem-Solving Coping with emotion) on mental health issues students were included.
- c. **Comparison:** The comparator group included adolescents who did not receive any intervention.
- d. **Outcome:** In this systematic review, we analyze mental health issues such as; anxiety, depression, stress self-esteem. Meta-analysis was done for depression, stress, and self-esteem.

**Study Risk of Bias Assessment and Effect Measures:**

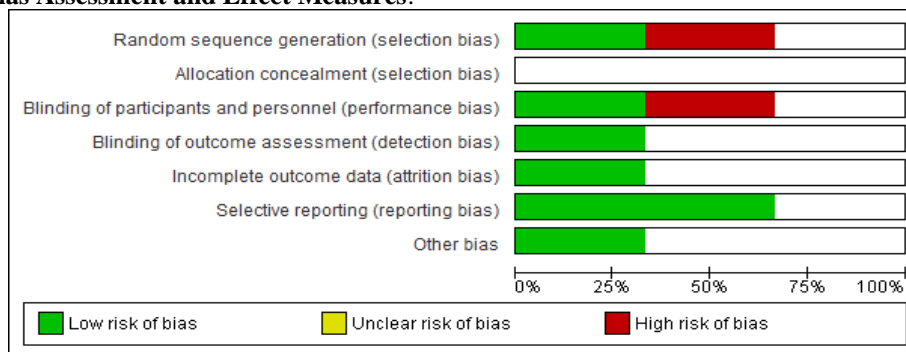


Fig. 1 Risk of bias chart based on review authors' judgment.

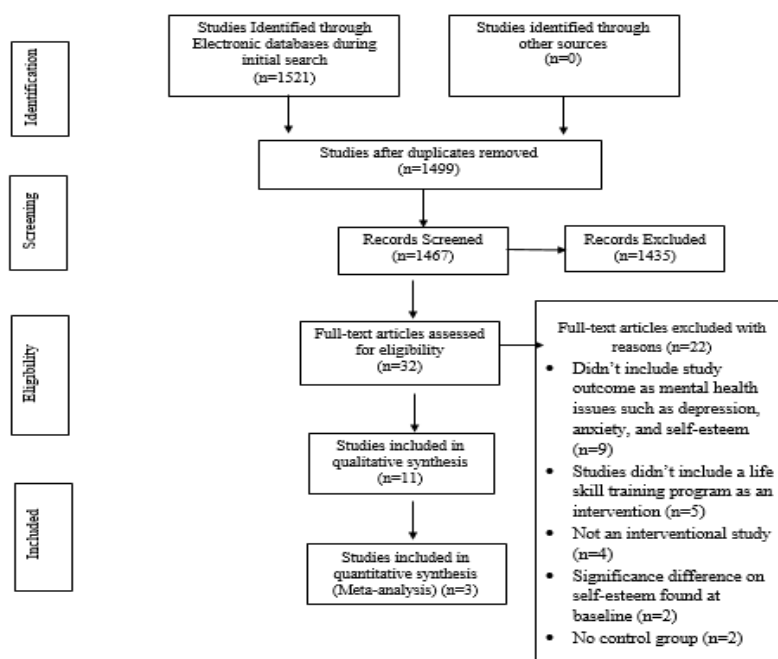
Using the Cochrane risk of bias tool, the methodological quality of the included studies was evaluated by two independent authors (DSVS & UP). It included six domains as mentioned in Fig. 1. We found a 100% unclear bias regarding allocation concealment and 70% low-risk bias was noted toward selective reporting. The details regarding the percentages of risk of bias across all trials are reported in Fig. 1.

**The outcome of the Search:**

A total of 1521 studies were found through electronic databases. Twenty-two duplicates were removed using Reference Manager. After screening the title and

abstracts, 1467 studies were screened out of which 1435 records were omitted as they did not meet the criteria of this review as per the PICO. Full-text articles assessed for eligibility were 32, from which 21 articles were eliminated as they were unable to fulfill the inclusion criteria. The rationale for excluding the full-text articles along with the study selection and elimination process is mentioned in the PRISMA flow chart (Fig. 2). Finally, 11 articles were involved in qualitative narrative synthesis, of which 3 RCTs were included for meta-analysis on the variable Depression, out of 3 RCT's 2 were included for Anxiety and Self Esteem

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**Fig. 2** Study selection process based on the PRISMA flow chart.

## Synthesis:

The outcome measures of the trials that included mental health issues, such as depression, anxiety, stress, and self-esteem between adolescents who received the Life Skill Training Program as an intervention and the control group who were on routine (No intervention) were differentiated. A meta-analysis on depression, anxiety, and self-esteem was conducted to pool the results of RCTs using the Rev-Man v5.4 software. The intervention's effect size for depression, anxiety, and

self-esteem was estimated as a continuous outcome by pooling the standardized mean difference by applying a random-effect model with a 95% confidence interval (CI).  $I^2$  value was used to analyze the heterogeneity in the included trials. The quality of evidence and the strength of the outcome (effect sizes: 0.8 and above-large, around 0.5 medium, and around 0.2 small) were measured based on the GRADE approach guidelines.<sup>22,23</sup> The findings are reported in **Table 1** and **2**.

**Table 1** Summary of finding for efficiency LSTP among adolescent students with mental health issues (anxiety)

**Life skills training program on Anxiety (Mental Health) compared to placebo for [health problem]**

**Patient or population:** Adolescent students

**Setting:** Educational institutions

**Intervention:** Life skills training program on Anxiety (Mental Health)

**Comparison:** placebo

Outcomes	Anticipated absolute effects* (95% CI)		Relative effect (95% CI)	№ of participants (studies)	Certainty of the evidence (GRADE)	Comments
	Risk with placebo	Risk with Life skills training program on Anxiety (Mental Health)				
Anxiety assessed with GHQ 28. DASS-21	The mean anxiety score ranged from 3.8 to 7.95	SMD 0.55 lower (0.77 lower to 0.34 lower)	-	361 (2 RCTs)	⊕⊕⊕○ Moderate	Life skill training program likely results in decrease anxiety. Moderate effect size. Statistically significant at $p < 0.00001$ . SMD of 0.55 lower represents the decrease in anxiety symptoms and considerable difference between groups.

\*The risk in the intervention group (and its 95% confidence interval) is based on the assumed risk in the comparison group and the relative effect of the intervention (and its 95% CI). CI: confidence interval; SMD: standardized mean difference  
**Moderate certainty:** we are moderately confident in the effect estimate: the true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different

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**Table 2 Summary of finding for efficiency LSTP among adolescent students with mental health issues (Self-esteem)**

Life skills Training Program on Self-esteem (Mental Health) compared to placebo for [health problem]						
<b>Patient or population:</b> Adolescent students						
<b>Setting:</b> Educational institutions						
<b>Intervention:</b> Life skills Training Program on Self-esteem (Mental Health)						
<b>Comparison:</b> placebo						
Outcomes	Anticipated absolute effects* (95% CI)		Relative effect (95% CI)	N <sub>o</sub> of participants (studies)	Certainty of the evidence (GRADE)	Comments
	Risk with placebo	Risk with Life skills Training Program on Self-esteem (Mental Health)				
Self-esteem assessed with RSES and Cooper Smith's self-esteem questionnaire.	The mean Self-esteem score ranged from 25.25 to 30.96	<b>SMD 1.06 higher</b> (0.27 higher to 1.84 higher)	-	361 (2 RCTs)	⊕⊕⊕○ Moderate	Life skill training program likely results increase in self-esteem. Moderate effect size. Statistically significant at p<0.00001. SMD of 1.08 higher represents increase in self-esteem and considerable difference between groups.

\*The risk in the intervention group (and its 95% confidence interval) is based on the assumed risk in the comparison group and the relative effect of the intervention (and its 95% CI).

CI: confidence interval; SMD: standardized mean difference

**Moderate certainty:** we are moderately confident in the effect estimate: the true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different

## Results:

The characteristics of adolescents in this systematic review, 11 clinical trials (RCTs & Non-RCTs) involved 4841 adolescent students and the number of participants ranged from 30 to 2662. The studies measured mental health issues as the main outcome. In all trials, the interventional group received the Life Skill Training Program as an intervention and the control group was under routine / no intervention. The details are mentioned in **Table 3**. Effects of intervention: Depression, anxiety, and self-esteem were analyzed as a

major outcome in this meta-analysis. The effectiveness of the Life Skill Training Program as an intervention was calculated based on the difference between the intervention group and control group post-test scores. A total of 11 trials were included for narrative synthesis that showed a significant decrease in depression, anxiety, and improvement in self-esteem in the interventional group than in the comparison group.<sup>24-34</sup>

Sl. No	Author, year, and location	Study type	Sample size/group	Participants	Intervention details and duration	Outcome measures	Instruments	Study findings
1	Rezvan et al, 2014, Rafsanjan, Iran. <sup>24</sup>	Non RCT	30, IG=15, CG=15.	Female high school students	Life Skill Training program, 8 weeks, 2 sessions per week.	Stress and Depression	Molavi's questionnaire of neurosis, stress, and depression	A significant reduction in stress and depression scores in the experimental group compared to the control group. (p < 0.05).
2	Marjan et al, 2019, Malaysia <sup>25</sup>	RCT	271. IG=139, CG=132.	Malaysian adolescents in orphanages	Life skill training program 2 weekly, 2 hrs. and 30 minutes, for 2 months	Depression, self-esteem, Anxiety and Stress	DASS-21 and RSES	A significant difference was observed between the experimental and control groups regarding Depression, self-esteem, Anxiety and Stress scores (p < 0.001).
3	Srikala B. & Kishore KKV. 2010, India <sup>26</sup>	Non RCT	1028 IG=605 CG=423	Adolescent students	Life skill training program 2 sessions weekly, and 15 sessions for 2 months.	Self-esteem (RSES)	RSES - Rosenberg Self Esteem Scale	A significant difference was observed between the experimental and control groups regarding self-esteem, scores (p < 0.002).
4	Jung Lee et al. 2020. Taiwan <sup>27</sup>	RCT	2662 IG=1234 CG=1288	Adolescent students	Life skill training program 27	Depressed affect	Center for epidemiologic studies	A significant difference was observed between the

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					sessions over 3 semesters.		depression scale for children (CESDC)	experimental and control groups regarding Depressed affect scores ( $p < 0.05$ ).
5	Vatankhah et al. 2014, Iran <sup>28</sup>	Non RCT	30 IG=15 CG=15	Adolescent students	Life skill training program 27 sessions over 3 semesters.	Self esteem	Cooper Smith's self-esteem questionnaire.	A significant difference was observed between the experimental and control groups regarding self-esteem, scores ( $p < 0.001$ ).
6	Jamali et al. Iran 2016. <sup>29</sup>	Non RCT	100 IG=50 CG=50	Adolescent students	Life skill training program 2 sessions for 1 week for 1 month.	stress	Kettle Personality Scale for stress	A significant difference was observed between the experimental and control groups regarding stress, scores ( $p < 0.001$ ).
7	T Yankey and U N Biswas <sup>30</sup>	Non RCT	300 IG=150 CG=150	Adolescent students	Life skill training program 2 sessions for 1 week for 1 month.	stress	Seiffge-Krenke	A significant difference was observed between the experimental and control groups regarding stress, scores ( $p < 0.001$ ).
8	Ayub G and V Kumar, India 2017 <sup>31</sup>	Non RCT	200 IG=100 CG=100	Adolescent students	Life skill training program 8 sessions for 2 months and one session per week.	Psychological distress	Kessler Psychological Distress Scale.	A significant difference was observed between the experimental and control groups regarding Psychological Distress Scale scores ( $p < 0.00$ ).
9	S Jafarigiv and N Peyman, Iran, 2019 <sup>32</sup>	Non RCT	100 IG=50 CG=50	Adolescent students	Life skill training program 5 sessions for 3 months.	self-esteem and self-efficacy	Coopersmith Self-esteem Questionnaire and Sherer's Self-efficacy Questionnaire.	A significant difference was observed between the experimental and control groups regarding self-esteem and self-efficacy. scores ( $p < 0.001$ ).
10	P Golshiri, A Mostofi and S Rouzbahani, Iran, 2023 <sup>33</sup>	RCT	60 IG=30 CG=30	Adolescent students	Life skill training program 6 sessions for 90 minutes duration of one month.	Somatic symptoms, Anxiety/insomnia, Social dysfunction, Severe depression	GHQ The Coopersmith Self-Esteem Inventory (CSEI):	A significant difference was observed between the experimental and control groups regarding Somatic symptoms, Anxiety/insomnia, Social dysfunction, Severe depression scores ( $p < 0.001$ ).
11	N Iqbal et al India, 2017 <sup>34</sup>	Non RCT	60 IG=30 CG=30	Adolescent students	Life skill training program 10 sessions for 90 minutes duration of one month.	Somatic symptoms, Anxiety/insomnia, Social dysfunction, Severe depression	GHQ 28	A significant difference was observed between the experimental and control groups regarding Somatic symptoms, Anxiety/insomnia, Social dysfunction, Severe depression scores ( $p < 0.001$ ).

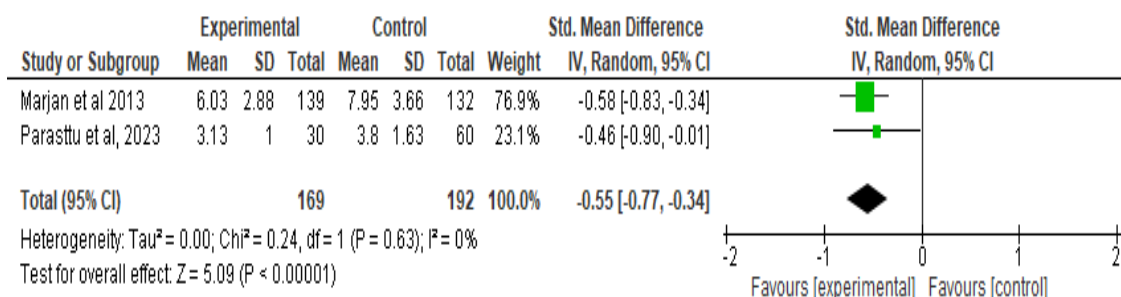
**Statistical Analysis:**

The meta-analysis of two RCTs containing 361 adolescents concluded a significant ( $p < 0.0001$ ) decline in depression symptoms. A significant reduction in the depression was revealed by the random effects model using standardized mean difference (SMD = -0.55, 95% CI: 0.77, -0.34) and a significant difference ( $Z = 5.09$ ,

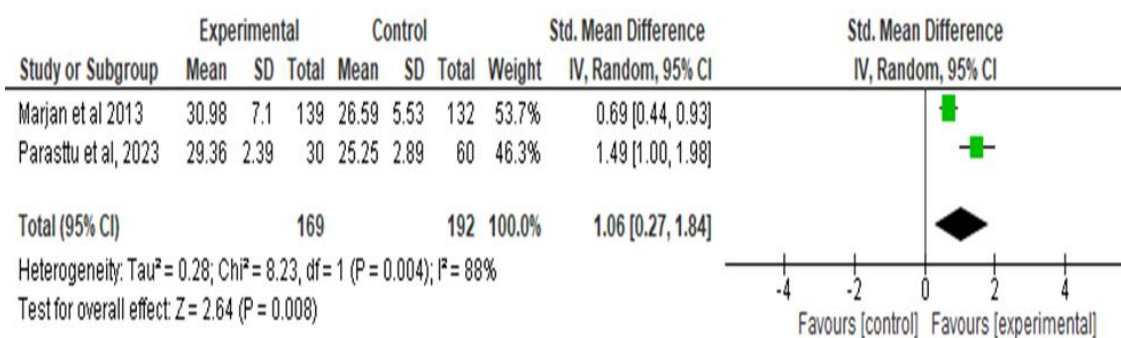
$p < 0.001$ ) was identified between experimental and control groups. The pooled studies were homogenous ( $p = 0.63, I^2 = 0\%$ ). Because the two RCTs used different tools for measuring depression, the standardized mean difference with the random effects model was used for effect measure (Fig. 3). The meta-analysis of two RCTs containing 361 adolescents concluded a significant ( $p <$

0.0001) improvement in self-esteem. A significant improvement in self-esteem was revealed by the random effects model using standardized mean difference (SMD = 1.06, 95% CI: 0.27, 1.84) and a significant difference ( $Z=2.64$ ,  $p < 0.01$ ) was identified between experimental and control groups. The pooled studies were heterogeneous ( $p= 0.004$ ,  $I^2= 88\%$ ). Because the two

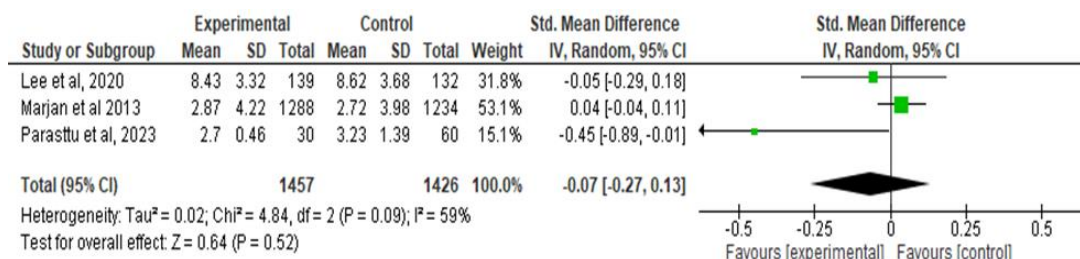
RCTs used different tools for measuring self-esteem, the standardized mean difference with the random effects model was used for effect measure (Fig. 4). The meta-analysis of two RCTs containing 361 adolescents concluded a non-significant ( $p=0.52$ ) decline in depression symptoms. (Fig. 5)



**Fig 3 Effectiveness of Life Skill Training Program on anxiety.**



**Fig 4 Effectiveness of Life Skill Training Program on self-esteem.**



**Fig 5 Effectiveness of Life Skill Training Program on depression.**

**Publication Bias:**

Publication bias was not evaluated as only three trials were incorporated for this meta-analysis.

**Evidence of Quality:**

There was a moderate quality of evidence for the assessed anxiety, and self-esteem due to an unclear risk of bias (Table-1 & 2).

**Discussion**

This systematic review gives evidence that Life Skill Training Program reduced the symptoms of Depression, Anxiety, Stress and Improved in the self-esteem among adolescent children. Our review included 11 trials published between 2011 and 2023, identified all studies reporting that Life Skill Training were reduced the symptoms of mental illness and enhanced the mental

health. All the studies showed favorable outcomes. Two trials were incorporated in this meta-analysis to evaluate the effectiveness of Life Skill Training Program interventions among adolescent students regarding the improvement in the self-esteem and reduction in anxiety symptoms. Two trials revealed significant favorable change in the self-esteem and anxiety. However, the pooled result of two trials showed that the Life Skill Training Program interventions significantly improved the self-esteem and reduced the anxiety symptoms. This systematic review identified that mental health symptoms were the most common among adolescent children. These findings are congruent with those of previous studies that highlighted the effectiveness of LSTP. The outcome of our systematic review was supported with the previous systematic reviews that highlighted that LSTP interventions had helped to

minimize symptoms and improved in self-esteem and anxiety symptoms<sup>32</sup>. The findings of this review will encourage healthcare professionals and organizations to develop innovative methods of LSTP that can help adolescent students to manage the mental illness symptoms by themselves in their respective home settings. However, LSTP alone may not enhance the well-being of adolescents when the symptoms are in severe form. The outcome of this review might encourage the opportunity for the usage of LSTP for rendering the healthcare services to the mental health issue among adolescent children.

### **Limitations**

Trials published in English language only were included for this systematic review, thereby raising the chances for language bias. Publication bias was not assessed due to restricted number of trials in the meta-analysis.

### **Conclusion**

The evidence of this systematic review and meta-analysis supported that LSTP interventions help to improve the self-esteem and decreases the symptoms of depression, anxiety and stress among adolescent students. There is a need for further high quality of evidence through trials for effective implementation of LSTP for adolescents with mental health issues.

### **Systematic Review Registration No**

International Prospective Register for Systematic Reviews  
(Prospero Registration No- CRD42022302348).

### **Conflict of Interest**

None declared.

### **Acknowledgment:**

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