Razavi Int J Med. 2024 May 12(2): e1302 doi: 10.30483/RIJM.2024.254496.1302

Published online 2024 May **Original Article**

Impact of Life Skills Education on Changing Attitudes toward Substance Abuse and Promoting Healthy Lifestyle Behaviors in Female Students

Soheila Panahi[1], Hajar Seifi[2], Abbas Garousi[3], Forouzan Eghbalpour[4], Azade Noroozi Fard[5*]

1. Department of Psychology, Karaj Branch, Islamic Azad University, Karaj, Iran
2. Department of Psychology, Allameh Tabataba'i University, Tehran, Iran
3. Department of Psychology, Hamadan Branch, Islamic Azad University, Hamadan, Iran
4. Master's Degree in Psychology and Education of Exceptional Children, Shiraz University International Division, Shiraz, Iran
5. Department of Psychology, North Tehran Branch, Islamic Azad University, Tehran, Iran

***** ***Corresponding author:*** Azade Noroozi Fard, Department of Psychology, North Tehran Branch, Islamic Azad University, Tehran, Iran. Email: azadeno.f@gmail.com

Received 2024 February 9**; Accepted** 2024 April 20.

Abstract

Background: The increasing positive attitudes of adolescents toward substance abuse and the prevalence of addiction are alarming.
Objectives: The present study aimed to assess the impact of life skills education on changing attitudes toward substance abuse and promoting healthy lifestyle behaviors in females.
Methods: This study was conducted based on an experimental design with a control group. The statistical population included all female students in girls' public schools in District One of Tehran in the academic year 2020-2021. A total of 100 students were selected via the purposive sampling method and randomly assigned to intervention and control groups (n=50 in each group). The intervention group received life skills education for eight 60-minute sessions (two sessions per week), while the control group received no education. Data were collected using demographic information and two questionnaires: A Substance Abuse Attitude Survey and a Healthy Lifestyle Questionnaire. The data were analyzed in SPSS software (version 25) using independent T-tests, paired T-tests, and analysis of covariance. Statistical significance was considered at P<0.05.
Results: The results demonstrated a statistically significant difference in the mean scores of attitudes toward addiction and lifestyle after the study, as indicated by the independent T-test (P=0.014; P=0.001). The results of the covariance analysis between the mean scores of attitudes toward addiction and lifestyle in the study groups revealed a statistically significant difference (P<0.01).
Conclusion: Life skills education can be effective in changing attitudes toward substance abuse and promoting healthy lifestyle behaviors in female high school students.

Keywords: Addiction, Attitude, Female, Life skills education, Lifestyle, Student

1. Background

Annually, an average of 5 million people worldwide die due to drug abuse, and approximately 24 million people become infected with HIV/AIDS due to substance abuse (1). Therefore, addiction and substance abuse are major biological, psychological, and social problems that can severely impact an individual's personal, family, social, and cultural life, as well as the community (2). As a result, it is a priority in mental health research and is approached from different perspectives, including cognition, prevention, and timely treatment (3). This issue is particularly critical among adolescents and youth since they constitute the primary human resources for the advancement of science and technology and are essential for the main foundations of progress, development, and capabilities of any society. Moreover, youth is one of the most critical life periods in which adolescents are more inclined to substance abuse. Therefore, addiction poses the most significant harm to active and efficient human resources, especially those who have received education (4).

Adolescents are highly prone to engaging in risky behaviors, which are caused by coping responses to fear, fear of inadequacy, the need for self-assertion, or peer pressure. Students are dynamic members of society and cannot be ignored; therefore, it is essential to recognize their attitudes, characteristics, problems, and needs and communicate with them appropriately (5). Adolescents who feel physical, emotional, and economic security are less likely to engage in risky behaviors (3).

Adolescents who use substances may experience a wide range of short-term and long-term adverse effects (6). Short-term consequences of substance use may include impairment, mood disorders, increased driving accidents, increased involvement in conflicts, suicide, or even death due to excessive substance use (7). Long-term consequences encompass dependence, addiction, physical problems, as well as mental problems, such as memory loss, neurological-cognitive issues, and depression (8). It is crucial to identify risk factors and protective factors for implementing necessary interventions to prevent substance abuse in adolescents. Risk factors increase the likelihood of risky adolescent behaviors, while protective factors decrease this likelihood (9).

Investigations have revealed that the risk and protective factors are in society, family, school, individuals, or peers (10). Risk factors related to

society include delinquency in society and the availability of substances. Family risk factors are a family history of substance use, poor family management, and family involvement. Poor academic performance and low school commitment are considered school-related risk factors. Individual and peer risk factors include early initiation and continuity of antisocial behavior and substance use by peers (11). Community protective factors include creating favorable conditions for talent development and a sense of community. Family protective factors include family attachment and parental supervision of children. When designing interventions to prevent substance abuse in adolescents, it is crucial to not only reduce risk factors but also emphasize positive and protective factors (12).

Considering the relatively high prevalence of addiction in adolescents, it seems that the knowledge and attitudes of adolescents toward substance use and addiction play a crucial role in their inclination toward drugs (13). The resilience of individuals may result from the methods and contexts they have chosen in life. Individuals with different lifestyles shape the world in diverse ways, and events have different meanings for them in the context of their lives. Lifestyle is how individuals have chosen throughout their lives, and its foundation is laid in the family and affected by the culture, race, religion, economic, and social aspects of the individual. Lifestyle is the regular and daily activities that individuals have accepted in their lives and affect their health; nonetheless, individuals' resistance to difficulties and challenges can be impacted by their lifestyle (14).

Research has pinpointed that some interventions can be effective in the reduction of substance abuse in adolescents. Types of evidence-based interventions for substance abuse in adolescents include Cognitive-Behavioral Therapy, Motivational Enhancement Therapy, life skills education, family-based treatment, and programs combining various components of these methods and other approaches (15). In a study, prevention programs over one year did not have an impact on preventing cigarette smoking. Life skills education may have little impact on smoking cessation but can decrease cigarette or substance use (16). In a recent study by Ebrahem et al. (2023), life skills education was found to boost the self-esteem of participants in the intervention group compared to those in the control group (17,18).

Another research project focused on the impact of life skills education on the mental health of high school students in Qaem Shahr. The findings revealed notable differences in addiction, stress, and aggression levels between the intervention and control groups before and after the study (19). On the contrary, another study concluded that the two groups had no significant statistical difference in self-esteem scores. The results suggested that life skills education programs had little to no effect on the enhancement of students' self-esteem (20).

2. Objectives

A life skills education program is a comprehensive program designed to teach a wide range of personal and social skills. It has the potential to prevent a variety of social problems and harms. In addition to teaching general skills, such as self-expression (such as saying no, requesting, and asserting one's social rights), students are taught to make use of these skills to resist direct peer pressure to smoke, consume alcohol, or use drugs (21). Therefore, Students are not only introduced to various skills that enhance their overall competence and abilities but are also taught to apply these skills in situations where they may be tempted to use substances, thereby reducing their inclination towards substance abuse (15,16). In light of the aforementioned issues, the current study aimed to assess the impact of life skills education on attitudes toward substance abuse and promoting healthy lifestyle behaviors of female high school students in the 2020-2021 academic year.

3. Methods

The present study was conducted based on an experimental design with a control group. The statistical population included all female students in girls' public schools in the first district of Rey in the 2020-2021 academic year. The study sample consisted of two randomly selected girls' high schools. The sampling was conducted in two stages. In the first stage, all girls' public schools in the first district of Rey were considered a cluster, and two schools were randomly selected from among them. In the second stage, the desired sample size was randomly selected from the class list of secondary high school students to attain the desired sample size. In this study, the sample size was calculated using the following formula with a 5% Type I error level and 80% power in a one-tailed model. To demonstrate a 50% difference between the intervention and control groups, a sample size of 44 participants was estimated in each group, with a 10% dropout rate, resulting in a final determination of 50 participants in each group.

$$n = \frac{(Z_{1-\frac{\alpha}{2}} + Z_{1-\beta})^2(\sigma_1^2 + \sigma_2^2)}{(d)^2}$$

The inclusion criteria entailed the second-grade high school female students in District One of Rey who had the necessary approval to participate. On the other hand, the exclusion criteria were a history

of mental illness, development of a mental illness during the study, and absence in more than one educational session. The research method involved obtaining permission from the educational deputy of the university. After obtaining the necessary approvals, the study was coordinated with the Education Department of District One of Rey. After presenting the required explanations and the purpose of the research to the relevant authorities, their consent and necessary coordination for conducting the study were obtained. The process involved obtaining a list of girls' public schools in District One of Rey and randomly selecting them. The selected schools were referred to, and after necessary explanations were provided to school managers, their consent to participate in the research was obtained. Subsequently, a list of second-grade high school female students was obtained, and due to the prevalence of the COVID-19 virus, data collection and interventions were conducted virtually.

The school managers provided the students with necessary information about the research objectives through the Shad messaging application, and they were asked to participate if they agreed. Therefore, sampling was performed among students who provided the necessary consent and met the inclusion criteria. After sampling, the students' phone numbers were obtained confidentially. Two class groups were formed on the WhatsApp messaging application: one for the intervention group and the other for the control group. Before the commencement of the intervention, participants were provided with the purpose and procedure of the research. Following that, electronic questionnaires were sent, and the students were asked to respond to the questionnaires. In total, 100 second-grade high school female students entered the study and were randomly assigned to the intervention group (n=50) and the control group (n=50). The intervention group received life skills education for one month through eight 60-minute sessions (Table 1). After one month and the completion of interventions (19), both groups were asked to complete the questionnaires again on a specified date and time. Informed consent was obtained in writing from all participants who met the inclusion criteria (Figure 1).

Table 1. Eight-Session Life Skills Protocol

Sessions	Method and Assignments
1	-Introduction-pre-test execution and consent form collection-identification of emotions -How I see myself-My weaknesses-visualization ability-building self-awareness-personal goals-my achievements
2	-One-way communication activity -Verbal and non-verbal communication activity -I don't listen to activity-More practice activity-Active listening activity
3	- What is anger activity-Anger-inducing situations-Expression methods of anger-Anger management
4	-Communication styles-Importance of assertive behavior-Specific methods for difficult situations-
5	- Definition of depression-Activities related to my depression
6	-Definition of problem-solving-Coping and types of coping-Seeing a problem as a problem
7	-Definition of personality and coping-Coping strategies for stress-Financial management-Time management
8	-Building trust in interpersonal relationships- Establishing clear and unambiguous communication and support for each other-Conflict resolution and problem-solving

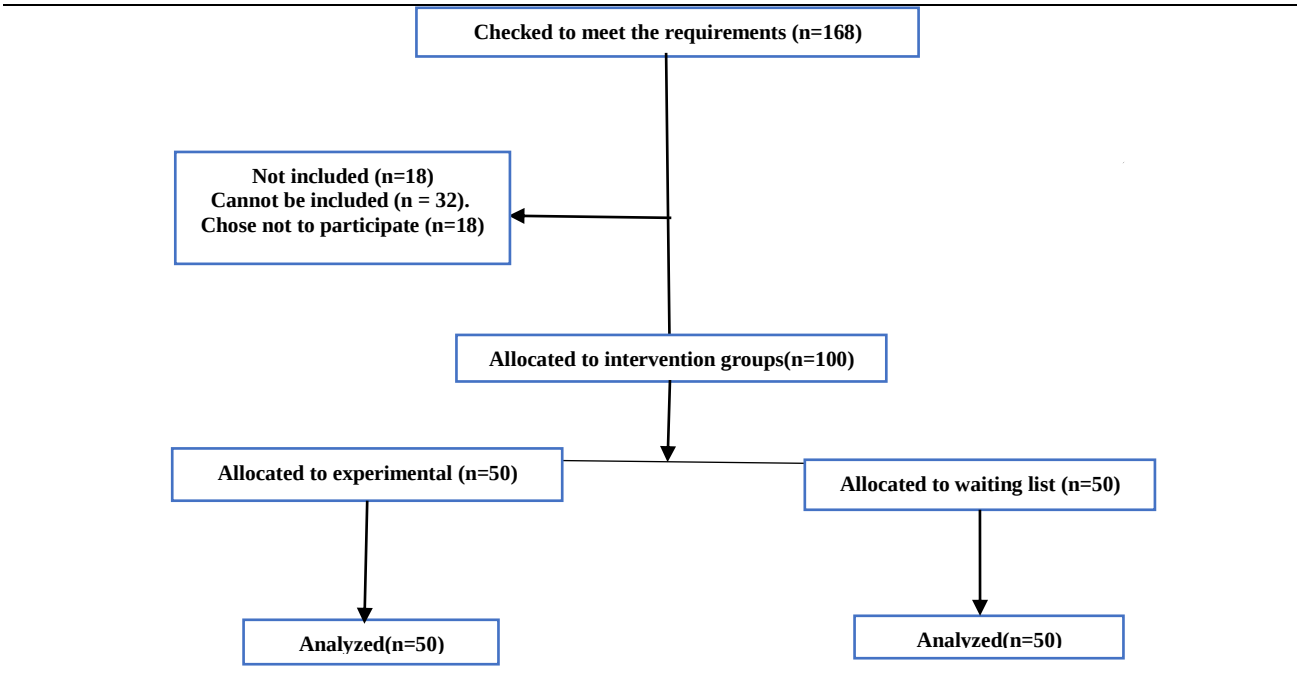

Figure 1. CONSORT flow diagram

Data Collection Tools

In this research, data were collected through demographic information form, encompassing gender, birth order, the latest academic average, parents' education level and occupation, household size, and questions concerning economic status. The translated form of two questionnaires was also used, one Substance Abuse Attitude Survey (SAAS) and the other Healthy Lifestyle Questionnaire (LSQ).

Substance Abuse Attitude Survey

This survey represents the perspectives of individuals regarding addiction and substance use (22). The scoring system for this survey is based on a five-point Likert Scale ("completely agree," "agree," "neutral," "disagree," and "completely disagree)." For positive questions, scores range from one to five, whereas reverse scoring is used for negative questions. Each individual's attitude score is determined by summing up all the scores. The score range on this survey falls between 32 and 160. The validity and reliability of this questionnaire were assessed, resulting in a Cronbach's alpha coefficient of 0.81 (23). In this study, the Cronbach's alpha coefficient of this scale was 0.81.

Healthy Lifestyle Questionnaire

Lali, Abedi, and Kajbaf (24) developed this scale to assess lifestyle. The LSQ comprises 70 items and is evaluated based on a 4-point Likert Scale (0 for never, 1 for sometimes, 3 for usually, and 4 for always). This questionnaire aims to evaluate different aspects of lifestyle, such as physical health, exercise and fitness, weight management and nutrition, disease prevention, psychological well-being, spiritual health, social health, substance avoidance, accident prevention, and environmental health. The scoring system for this survey uses the Likert scale mentioned above, with higher scores indicating a more favorable lifestyle. The possible range of scores is 68-272. The validity and reliability of this questionnaire were assessed, resulting in a Cronbach's alpha coefficient of 0.76-0.89 (24). In this study, the researcher found a Cronbach's alpha coefficient of 0.899 for this scale.

Statistical Analysis

The researchers utilized independent t-tests and chi-square tests to analyze the demographic characteristics of the study groups. Descriptive statistics, such as mean (standard deviation), were used for quantitative variables, while frequency reports (percentage) were employed for qualitative variables. Parametric analysis was selected based on the assumption of normality and equal variances among the groups. Normality was checked using the Kolmogorov-Smirnov test, and variance equality was assessed using the Levene test. An independent t-test was utilized to compare the means of quantitative outcomes between the groups. A paired t-test was employed to compare the means of quantitative results before and after the study. Qualitative variables were compared using either the chi-square test or Fisher's exact test. Covariance analysis was used to control for confounding variables. Data were analyzed using SPSS software (version 25). A p-value of less than 0.05 was considered statistically significant.

4. Results

The results of the independent t-test comparing the mean scores of students' latest academic averages indicated that the academic averages of students in the intervention and control groups were 57.18±47.1 and 98.18±98.18, respectively. The t-test results did not illustrate a statistically significant difference between the two groups (P=0.320). As evidenced by the results, in the intervention group, most students were second-born, while in the control group, most were first-born, with a frequency of 46%. The chi-square test did not exhibit a statistically significant difference in birth rank between the study groups (P=0.532).

The presented findings display the results of the two-way chi-square test, which compares fathers' education levels between the study groups. The analysis indicated that the highest frequency of fathers' education in the control group was a diploma (52.00%) (26). On the contrary, in the intervention group, the highest frequency was high school education (36.00%) (18). In a similar way, the intervention group featured a low frequency of fathers with postgraduate education (12.00%), while the control group demonstrated a low frequency of fathers with undergraduate education (12.00%) (6). The results of the two-way chi-square test demonstrated a statistically significant distinction (P=0.033) in the frequency of fathers' education levels between the intervention and control groups. The same table shows that mothers with a diploma have the highest frequency in both intervention and control groups. In addition, in the control group, PhD had the lowest frequency (1.00%), while in the intervention group, postgraduate education had a recorded frequency of 6.00%.

Moreover, based on the findings of the two-way chi-square test that compared fathers' occupations in the study groups, it was observed that self-employed fathers had the highest rate, accounting for 56.00% in the intervention group and 12.00% of subjects in the control group. Furthermore, unemployed fathers had the lowest rate in the

control group (4.00%) (2), whereas retired and unemployed fathers had the lowest rate in the intervention group (6.00%). Nonetheless, the results of the two-way chi-square test did not indicate a statistically significant difference in the frequency of fathers' occupations between the intervention and control groups (P=0.848). In addition, in both the intervention and control groups, the majority of mothers were homemakers, comprising 76.00% in the intervention group and 84.00% in the control group. Interestingly, employed mothers had the lowest rate in the control (6.00%) and intervention (4.00%) groups. Similar to fathers' occupations, the results of the two-way chi-square test did not demonstrate a statistically significant difference in the frequency of mothers' occupations between the intervention and control groups (P=0.523).

In the following section, the highest frequency of four-member families was observed in both the intervention and control groups, accounting for 56.00% and 46.00% of cases, respectively. In contrast, two and six-member households had the lowest frequency in the intervention group (4.00%), and two-member families had a frequency of 0% in the control group. The chi-square test analyzing the occupation distribution of mothers in the intervention and control groups did not indicate a significant difference (P=0.260). Furthermore, in the intervention group, 36.00%, 32.00%, and 32.00% of students belonged to low, medium, and high economic groups, respectively. In the control group, the corresponding percentages were 38.00%, 28.00%, and 34.00%. Nevertheless, the chi-square test results showed no significant statistical difference in economic status between the study groups (P=0.909).

As displayed in Table 2, the mean scores of attitude scores toward addiction prior to the study were 158.22±20.50 and 161.48±16.00 in the intervention and control groups, respectively. The t-test revealed no significant variance between the two groups (P=0.378). Nevertheless, following the study, the attitude scores towards addiction were 154.44±9.78 in the intervention group and 160.56±17.52 in the control group. The t-test exhibited a significant difference between the two groups (P=0.014).

Table 3 displays the results of the paired t-test comparing the mean scores of attitudes toward addiction in each study group. Based on this table, the scores of attitude towards addiction decreased significantly in the intervention group after the intervention, as compared to before (P=0.001). In contrast, there was no statistically significant difference in the scores of attitude towards addiction in the control group after the intervention (P=0.20).

Table 2. Results of the independent t-test to compare the mean scores of attitudes toward addiction before and after the intervention between the study groups

Group		Mean± SD	p-value
Before Intervention	Intervention	158.22±20.50	0.378
	Control	161.48±16.00	
After Intervention	Intervention	154.44±9.78	0.014
	Control	160.56±17.52	

Table 3. Results of the paired t-test to compare the mean scores of attitudes toward addiction before and after the intervention in each study group

Group		Mean± SD	p-value
Before Intervention	Intervention	158.22 ± 20.50	0.001
	Control	161.48±16.00	
After Intervention	Intervention	154.44±9.78	0.001
	Control	160.56±17.52	

Table 4 presents the results of the analysis of covariance (ANCOVA) to compare the mean scores of attitudes toward addiction after the intervention among the study groups by eliminating the confounding effects of variables. These variables include the mean score of attitudes toward addiction at the beginning of the study, the mean economic status, fathers' education, mothers' education, fathers' occupation, mothers' occupation, and household size. According to the results of this test, after eliminating the confounding effects of variables, the difference between the mean scores of attitudes toward addiction in the intervention and control groups was statistically significant (P=0.016).

Table 4 displays the ANCOVA test to compare the mean lifestyle scores among the study groups after the intervention by removing the confounding effects of variables. The variables include the mean lifestyle score at the beginning of the study, grade point average, economic status, fathers' education, mothers' education, fathers' occupation, mothers' occupation, and household size. According to the results of this test, after removing the confounding effects, the difference between the mean lifestyle scores after the relevant interventions in the study groups was statistically significant (P=0.001).

Table 5 depicts the independent t-test results to compare the means of lifestyle dimensions in the intervention and control groups before the study. According to the results of this test, no statistically significant differences were observed between any of the lifestyle dimensions and their total scores in the study groups (P>0.05).

Table 6 presents the independent t-test results to compare the means of lifestyle dimensions in the intervention and control groups after the study. According to the results of this test, a statistically significant difference was detected in all lifestyle dimensions and the total score between the study groups (P<0.05). In other words, after conducting the relevant training, the mean scores of all lifestyle dimensions and the total lifestyle score in the intervention group showed a significant increase

compared to the control group.

Table 7 displays the results of the paired t-test, which aimed to examine the mean scores of various lifestyle dimensions in the intervention group. The results of this analysis indicated a significant disparity in the mean scores of all lifestyle dimensions, including the overall total score, following the implementation of the intervention in comparison with that before its implementation (P<0.05).

Table 8 presents the results of the paired t-test, which was utilized to evaluate the mean scores in the control group across various dimensions of lifestyle. Based on the findings derived from this test, no significant statistical disparity was observed in the control group regarding all lifestyle dimensions and the overall score before and after the intervention (P>0.05).

Table 4. Results of analysis of covariance

Variables	Groups	Mean± SD	F score	P-value
Attitudes toward Substance Abuse	Intervention	154.44±9.78	5.95	0.017
	Control	161.56±17.52		
Healthy Lifestyle Behaviors	Intervention	146.60±6.50	79.38	0.001
	Control	129.44±15.70		

Table 5. Results of the independent t-test results for comparing the means of lifestyle dimensions in the intervention and control groups before the study

Variables	Intervention Group	Control Group	P-value
	Mean± SD	Mean± SD	
Lifestyle	146.60±6.50	129.44±15.70	0.001
Prevention	22.38 ± 4.82	22.92 ± 4.07	0.547
Total Score	126.32±18.92	127.74±16.00	0.07

Table 6. Results of the independent t-test results to compare the means of lifestyle dimensions

Dimensions	Intervention Group	Control Group	P-value
	Mean± SD	Mean± SD	
Psychological	25.72±2.10	22.70±3.60	0.001
Social	26.22±1.80	24.10±3.50	0.010
Avoidance of drugs and substances	23.50±1.43	20.84±2.60	0.001
Exercise and health	24.60±2.10	19.90±4.50	0.001
Spiritual health	22.50 ± 1.40	20.90±3.33	0.040
Prevention	26.28±1.55	22.90±3.80	0.001
Total score	146.60±6.50	129.44±15.70	0.001

Table 7. Results of a paired t-test comparing the mean scores within the intervention group in lifestyle dimensions

Dimensions	Before Intervention	After Intervention	P-value
	Mean± SD	Mean± SD	
Psychological	20.54±4.00	25.72±2.10	0.001
Social	22.22±4.40	26.22±1.80	0.010
Avoidance of drugs and substances	20.60±2.80	23.50±1.43	0.001
Exercise and health	17.60±4.90	24.60±2.10	0.001
Spiritual health	19.90±4.00	22.50 ± 1.40	0.040
Prevention	22.38±4.82	26.28±1.55	0.001
Total Score	126.32±18.92	146.60±6.50	0.001

Table 8. Results of the paired t-test to compare the mean scores within the control group for lifestyle dimensions

Dimensions	Before Intervention	After Intervention	P-value
	Mean± SD	Mean± SD	
Psychological	21.90±3.10	22.70±3.60	0.790
Social	23.26±3.90	24.10±3.50	0.919
Avoidance of drugs and substances	20.50±2.93	20.84±2.60	0.532
Exercise and health	18.70 ± 4.50	19.90±4.50	0.603
Spiritual health	20.40 ± 3.20	20.90±3.33	0.110
Prevention	22.92 ± 4.07	22.90±3.80	0.686
Total score	127.74±16.00	129.44±15.70	0.080

5. Discussion

The present study aimed to assess the impact of life skills education on attitudes toward substance abuse and the promotion of healthy lifestyle behaviors among female high school students in Rey in the academic year 2020-2021. Parametric tests were employed since the study groups showed a normal distribution of data and equal variances. The findings of this study revealed a significant difference in the mean scores of attitudes towards addiction and lifestyle, along with their dimensions, in the study groups following an eight-week

intervention and after accounting for confounding variables. In the intervention group, there was a decrease in the mean score of attitudes towards addiction compared to the control group, whereas the mean lifestyle score increased compared to that in the control group.

These findings align with a study conducted in Taiwan on preventing substance use among students, reporting that lifestyle interventions had significant positive effects on students' knowledge level, attitudes, decision-making skills, and problem-solving skills, ultimately leading to a reduction in drug use (25). Another study demonstrated that low social connections among students in schools could increase the likelihood of substance use (26). In addition, a study focusing on life skills education for preventing substance abuse among fifth-grade students pinpointed positive effects (27). Some studies have identified the causes of developing attitudes toward addiction among adolescents as the problems existing in schools and the negative effects of peers. On the other hand, investigations in Iran have illustrated that the onset of substance use is in adolescents under 18 years of age, and many of them use drugs for the first time in schools or at their friends' homes (28).

Other studies have also considered additional reasons, including aggressive behaviors of parents, conflicts at home, criminal behaviors, low socio-economic status of the family, single-parent families, and the male gender, among the most important causes. Nonetheless, recent evidence suggested that girls are also at significant risk of substance use. Schools have the potential to prevent or delay substance use in students, and there is a demonstrated link between dropping out of high school and substance use. Effective prevention programs should protect students from dropping out while reducing their potential for substance use (29).

The findings of this study indicate that, following the intervention, the mean score of healthy lifestyle behaviors was lower in the intervention group compared to that in the control group. Previous research has explored life skills education programs for students and has highlighted marked improvements in mental health, relaxation techniques, and study skills after interventions. In addition, these studies have observed decreased physiological stress and behavioral issues, as well as increased self-esteem (13-21). Furthermore, some studies have demonstrated that mindfulness or emotional and social skill interventions have led to an increase in positive social behaviors and enhanced social skills among high school students (18, 20).

Stress management is a critical skill that involves utilizing cognitive and behavioral techniques to control or diminish stressful experiences. One approach to combating the adverse effects of stress among adolescents is to provide preventive skills training programs focusing on academic or social stress. These programs equip adolescents with tools to manage stress and regulate their emotions effectively. Schools need to address stress-related concerns, such as exams, grades, homework assignments, school expectations, career aspirations, and plans, as they significantly impact students (30). Academic stress is linked to performance anxiety, where individuals fear failure or feel incapable of meeting their own or others' expectations or experience exam anxiety. The implementation of intervention programs to improve coping skills for academic stress can reduce stress in the school environment (31).

In agreement with our research, previous studies have demonstrated improvements in social skills. Results indicated that a lack of social skills could lead to low self-esteem, anxiety, depression, and withdrawal, making students vulnerable to victimization and jeopardizing their healthy development (9-11). Some studies demonstrated that life skills education enhanced self-esteem and self-efficacy in girls, increasing their social skills (17-19). In addition, the results of some studies suggested that displaying negative behavior by teachers could reduce continuity and solidarity among students (32). In a similar vein, our study demonstrated improvements in physical activities among students following interventions. An eight-month life skills intervention on 221 ninth-grade students indicated improvement in their physical activity (33).

In a study on 9th-grade students, a significant difference was observed in eating behaviors and physical activity lifestyles (34). However, a study involving 413 high school students in Istanbul revealed that after nine months of intervention, central obesity risk significantly decreased in the intervention group compared to the control group, while physical activities decreased in the intervention group compared to the control group (35). Perceived barriers to physical activity among adolescents had a negative impact on the level of physical activity. In research conducted on girls, a lack of skills and, for boys, a lack of time was identified as among the most critical predictors of reduced physical activity (36). Moreover, evidence indicated that sedentary behavior is associated with the time spent on computers and the internet (33).

Among the notable limitations of this study, we ca refer to the restriction of participants to students from urban areas and limiting the generalizability of the results to rural areas. One strength of this study is the implementation of online education.

6. Conclusion

As evidenced by the results of this study, it can be concluded that life skills education can be effective in changing attitudes toward substance abuse and promoting healthy lifestyle behaviors among second-grade high school female students.

Ethical approval

The study, with the ethics code Ir.iums.rec.1399.694, was approved by the Ethics Committee of the Research University of Medical Sciences in Iran.

Acknowledgments

The researcher expresses gratitude and acknowledges the staff and management of the schools and students for their valuable cooperation and participation in conducting this research.

It is recommended to select references from the previous five years at most.

Conflicts of interest

The authors declare that they have no conflict of interest.

References

1. Karimi SE, Zanjari N, SoleimanvandiAzar N, Ahounbar E, Mohammadi Gharehghani MA, Ahmadi S. Drug injection and associated factors among the elderly living with HIV/AIDS in Tehran, Iran. Med J Islam Repub Iran. 2021 Apr 28;35:55. doi: 10.47176/mjiri.35.55. PMID: 34268243; PMCID: PMC8271279.
2. St. Arnaud KO. Toward a positive psychology of psychoactive drug use. Drugs: Education, Prevention and Policy. 2023 Jan 2;30(1):81-94.
3. Singh V, Kumar A, Gupta S. Mental Health Prevention and Promotion-A Narrative Review. Front Psychiatry. 2022 Jul 26;13:898009. doi: 10.3389/fpsyt.2022.898009. PMID: 35958637; PMCID: PMC9360426.
4. Nawi AM, Ismail R, Ibrahim F, Hassan MR, Manaf MR, Amit N, Ibrahim N, Shafurdin NS. Risk and protective factors of drug abuse among adolescents: a systematic review. BMC public health. 2021 Dec;21(1):1-5.
5. Mulvey KL, Boswell C, Zheng J. Causes and consequences of social exclusion and peer rejection among children and adolescents. Report on emotional & behavioral disorders in youth. 2017;17(3):71.
6. Zimmerman GM, Kushner M. Examining the contemporaneous, short-term, and long-term effects of secondary exposure to violence on adolescent substance use. Journal of youth and adolescence. 2017 Sep;46:1933-52.
7. Martini F, Fregna L, Bosia M, Perrozzi G, Cavallaro R. Substance-related disorders. InFundamentals of Psychiatry for Health Care Professionals 2022 Aug 31 (pp. 263-295). Cham: Springer International Publishing.
8. Dar MA, Gani I, Ara I. Overview of substance use disorder and available treatments. International Journal of Current Research in Physiology and Pharmacology. 2023 Feb 28:3-7.
9. Nawi AM, Ismail R, Ibrahim F, Hassan MR, Manaf MR, Amit N, Ibrahim N, Shafurdin NS. Risk and protective factors of drug abuse among adolescents: a systematic review. BMC public health. 2021 Dec;21(1):1-5.
10. Mihić J, Skinner M, Novak M, Ferić M, Kranželić V. The Importance of Family and School Protective Factors in Preventing the Risk Behaviors of Youth. Int J Environ Res Public Health. 2022 Jan 31;19(3):1630. doi: 10.3390/ijerph19031630. PMID: 35162651; PMCID: PMC8834957.
11. Arthur MW, Brown EC, Briney JS, Hawkins JD, Abbott RD, Catalano RF, Becker L, Langer M, Mueller MT. Examination of Substance Use, Risk Factors, and Protective Factors on Student Academic Test Score Performance. J Sch Health. 2015 Aug;85(8):497-507. doi: 10.1111/josh.12279. PMID: 26149305; PMCID: PMC4797630.
12. Muchiri BW, Dos Santos MM. Family management risk and protective factors for adolescent substance use in South Africa. Substance abuse treatment, prevention, and policy. 2018 Dec;13:1-0.
13. Pennathur S, Jaiswal M, Vivekanandan-Giri A, White EA, Ang L, Raffel DM, Rubenfire M, Pop-Busui R. Structured lifestyle intervention in patients with the metabolic syndrome mitigates oxidative stress but fails to improve measures of cardiovascular autonomic neuropathy. Journal of diabetes and its complications. 2017 Sep 1;31(9):1437-43.
14. Sisto A, Vicinanza F, Campanozzi LL, Ricci G, Tartaglini D, Tambone V. Towards a Transversal Definition of Psychological Resilience: A Literature Review. Medicina (Kaunas). 2019 Nov 16;55(11):745. doi: 10.3390/medicina55110745. PMID: 31744109; PMCID: PMC6915594.
15. Klamert L, Bedi G, Craike M, Kidd S, Pascoe MC, Parker AG. Physical activity interventions for young people with increased risk of problematic substance use: a systematic review including different intervention formats. Mental Health and Physical Activity. 2023 Sep 4:100551.
16. Luna-Adame M, Carrasco-Giménez TJ, Rueda-García MD. Evaluation of the effectiveness of a smoking prevention program based on the 'Life Skills Training'approach. Health Education Research. 2013 Aug 1;28(4):673-82.
17. Ebrahem SM, Radwan HA, El Amrosy S. The effectiveness of life skills training on assertiveness, self-esteem and aggressive behavior among patients with substance use disorders. International Egyptian Journal of Nursing Sciences and Research. 2022 Jan 3;2(2):413-31.
18. Sudmand N, Movallali G, Abedi A, Dadkhah A, Rostami M, Reza Soltan P. Improving the Self-Esteem and Aggression Control of Deaf Adolescent Girls: The Effectiveness of Life Skills Training. PCP 2020; 8 (3) :163-174
19. Babaei M. (2023). The Effectiveness of Life Skills Book Training on Improving the Social Skills, Problem Solving Ability, and Self-esteem of Female Students in Mazandaran Province. *Iranian Evolutionary and Educational Psychology*. *5*(1), 135-150.
20. Jamali S, Sabokdast S, Sharif Nia H, Goudarzian AH, Beik S, Allen KA. The Effect of Life Skills Training on Mental Health of Iranian Middle School Students: A Preliminary Study. Iranian journal of psychiatry. 2016;11(4):269-72.
21. Rezayat F, Nayeri ND. Self-efficacy after life skills training: a case-control study. Nursing and midwifery studies. 2013;2(4):83.
22. Chappel, J.N.; Veach, T.L.; Krug, R.S. The substance abuse attitude survey: An instrument for measuring attitudes. *J. Stud. Alcohol* 1985, 46, 48–52.
23. Sharifi Fard SA, Parchami Khoram M, Mikaeili N, Abdollahi Moghadam M, Ali Babaei G. Design and Validation of Youth High-risk Behaviors Short Scale. Journal of Family Relations Studies. 2022 Jun 1;2(5):4-14.
24. Lali M, Abedi A, Kajbaf MB. Construction and Validation of the Lifestyle Questionnaire (LSQ). Psychological Research. 2012; 15(1): 64-80.
25. Ķaminer Y, Bukstein OG. Adolescent substance abuse: Psychiatric comorbidity and high-risk behaviors: Taylor & Francis; 2008.
26. Spear LP. Neurobehavioral changes in adolescence. Current directions in psychological science. 2000;9(4):111-4.
27. Jiménez-Iglesias A, Moreno C, Rivera F, García-Moya I. The role of the family in promoting responsible substance use in

adolescence. Journal of Child and Family Studies. 2013;22(5):585-602.
28. Association AP. Diagnostic and statistical manual of mental disorders (DSM-5®): American Psychiatric Pub; 2013.
29. Gopiram P, Kishore MT. Psychosocial attributes of substance abuse among adolescents and young adults: A comparative study of users and non-users. Indian journal of psychological medicine. 2014;36(1):58.
30. Kessler RC, Avenevoli S, Costello EJ, Georgiades K, Green JG, Gruber MJ, He JP, Koretz D, McLaughlin KA, Petukhova M, Sampson NA, Zaslavsky AM, Merikangas KR. Prevalence, persistence, and sociodemographic correlates of DSM-IV disorders in the National Comorbidity Survey Replication Adolescent Supplement. Archives of general psychiatry. 2012;69(4):372-80.
31. Kann L, McManus T, Harris WA, Shanklin SL, Flint KH, Hawkins J, Queen B, Lowry R, Olsen EOM, Chyen D, Whittle L, Thornton J, Lim C, Yamakawa Y, Brener N, Zaza S. Youth Risk Behavior Surveillance — United States, 2015. Morbidity and Mortality Weekly Report: Surveillance Summaries. 2016;65(6):1-174.
32. Gilani R, Motaghi M. The relationship between social skills and misconduct with their teachers in high school students in the City Aligudarz 2018. International journal of adolescent medicine and health. 2019.
33. Anand T, Ingle GK, Meena GS, Kishore J, Yadav S. Effect of life skills training on physical activity patterns amongst school adolescents in Delhi: a non-randomized interventional study. International journal of adolescent medicine and health. 2014;26(4):575-83.
34. Danylenko HM, Sotnikova-Meleshkina ZV, Smiianov VA. The impact of an educational institution on development of healthy lifestyle skills for prevention of obesity in adolescents. Wiadomosci lekarskie (Warsaw, Poland : 1960). 2020;73(5):978-82.
35. Wadolowska L, Hamulka J, Kowalkowska J, Ulewicz N, Hoffmann M, Gornicka M, Bronkowska M, Leszczynska T, Glibowski P, Korzeniowska-Ginter R. Changes in Sedentary and Active Lifestyle, Diet Quality and Body Composition Nine Months after an Education Program in Polish Students Aged 11–12 Years: Report from the ABC of Healthy Eating Study. *Nutrients*. 2019;**11**(2):331.
36. Jodkowska M, Mazur J, Oblacińska A. Perceived barriers to physical activity among Polish adolescents. *Przegl Epidemiol*. 2015;**69**(1):73-8.