# The effect of assertiveness and stress management training on reducing high-risk behaviors in adolescent girls

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## Abstract

**Introduction:** The present study was conducted to evaluate the effect of assertiveness and stress management skills training on the reduction of high-risk behaviors in adolescent girls.
**Materials and Methods:** One hundred two female students from the high schools of Ilam participated in this quasi-experimental study in the year 2020. Samples were selected by cluster sampling and were randomly assigned to two intervention groups and one control group. The samples were trained with assertiveness and stress management skills. Data were collected using a standard High Risk Behavior Questionnaire at two stages of pre-test and post-test and were analyzed using SPSS V. 22 and the statistical tests, Kruskal-Wallis and U-Mann-Whitney. A P value <0.05 was considered significant.
**Results:** High-risk behaviors in the assertiveness group were less than the control group (P = 0.03), but substance use in the assertiveness group was higher than the control group (P = 0.001), and the results of the intervention did not have the necessary consistency. Training intervention in the stress management group showed that high-risk behaviors in this group did not change after training (P = 0.7), but substance use in the stress management group was lower than the control group (P = 0.001). High-risk behaviors in the stress management and assertiveness groups showed a significant difference compared to the control group (P = 0.03) and the results of the training intervention in terms of assertiveness showed consistency, but in the stress management group, the results showed lack of consistency and significance. In addition, substance use in the stress management and assertiveness groups was less than the control group, which was statistically significant (P = 0.001).
**Conclusion:** Simultaneous implementation of assertiveness and stress management skills training with emphasis on substance use and high-risk behaviors in female students can have satisfactory effects.

**Keywords:** High-risk behavior, Female students, Stress management, Assertiveness

## Introduction

Studies in Iran show that in recent years, high-risk behaviors have become more prevalent among adolescents. High-risk behavior has become one of the most serious health issues in recent years and because of its importance, has been the focus of health organizations, law enforcement and community policymakers (1, 2). In the view of experts in health and social issues, high-risk behavior is one of the most important problems that threaten the physical, psychological and social health of the individual and the society (3, 4). Unlike adults and children, adolescents are more prone to risky behaviors (5). In fact, adolescence is characterized by decentralized decisions and actions and is associated with an increase in the prevalence

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of high-risk behaviors and various issues such as violence, substance abuse, unwanted pregnancies and sexually transmitted diseases (6). Avoiding school, having sexual relations at this age, nutritional disorders, high-risk driving, breaking the law for instance through vandalism, theft, violence, smoking, and alcohol and drug use are also considered high-risk behaviors (7, 8). Suicide is also an example of high-risk behavior (9). In one study (10), it was found that mental norm is the most important predictor in girls and moral norm is the most important factor in the tendency to perform high-risk behaviors in boys (11). Today, in spite of profound changes in culture and lifestyle, many students lack the necessary and basic abilities in dealing with life and educational issues, and this has made them vulnerable in facing daily and academic problems.

Assertiveness training is one of the life skills that improves self-expression, self-esteem, increases determination in solving social problems and rational expression of thoughts and feelings, reduces anxiety, stress, and depression, and decreases maladaptive behaviors in students (12, 13).

Furthermore, stress is considered as one of the components of human life and is inevitable. Management is an important moderating variable associated with stress and its consequences, including anxiety and depression (14), which can be adaptive or maladaptive. That's because the speed of change is not consistent with adaptation to change, and this leads to a phenomenon called stress (15). Today, numerous non-pharmacological methods and techniques are known, studied and tested for managing stress, such as increasing stress awareness, relaxation training, deep breathing, recognizing dysfunctional thoughts, cognitive reconstruction, problem solving training, assertiveness training, anger management, time management, mindfulness and present moment awareness (16).

According to the definition of the World Health Organization, adolescence includes the age group of 10-19 years, which is the period of transition from childhood to adulthood. This transition has biological, psychological, social and emotional dimensions and adolescents are exposed to a lot of stress (17).

Today, adolescent girls live in a more complex and challenging world than it ever has been before. Although the same is true for boys, the point is that the girls' needs are less obvious and tangible than those of boys and are often neglected. The results of studies have shown that most often, boys manifest their behavioral problems in the form of external behaviors such as aggressive behaviors, disobedience and inappropriate behaviors in society, while girls express their problems in the form of internal behaviors in the form of isolation, physical symptoms, depression, and anxiety (18). Therefore, according to the culture of Iranian people who attach great importance to the vulnerability of girls, the present study was conducted to evaluate the effect of assertiveness and stress management skills training on reducing high-risk behaviors in adolescent girls.

## Materials and Methods

This is a quasi-experimental study with pretest and post-test design with three groups. The statistical population included all female students in high schools in region 2 of Ilam city in the year 2020, consisting of 1121 people. The sample size was estimated using G*Power software, 95% confidence level and 5% accuracy and a medium effect of 0.05. Finally, 102 people were selected using multi-stage cluster sampling method. Inclusion Criteria were age range of 13 to 17 years, studying at the first grade of high school, living in urban areas of Ilam, not



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participating in a similar study and willingness for participation. Those subjects who did not complete the questionnaire correctly and completely, were excluded from the study. Ethical considerations

This research was conducted after obtaining permission from the Azad University of Ilam and coordination with the relevant authorities. This study has an ethics code from the National Committee on Research Ethics (IR.MEDILAM.REC.1399.205).

Sampling was performed from January 21 until July 20, 2020. Participants were randomly divided into three groups (two intervention groups and one control group) and the questionnaires were completed before and after the test in two sessions (beginning of the study and two weeks after the intervention). After completing the questionnaires at the beginning of the study, the experimental groups were trained for assertiveness and stress management skills for eight weeks (two sessions per week) every other day for 45 minutes (one group only received assertiveness training and the other group only received stress management skills). Questionnaires were completed by the participants two weeks after the intervention. The control group did not receive any training.

Interventions (Interventions Separately Performed for Intervention Groups)

Assertiveness training program were as follow: Session 1) The need for self-expression and its benefits in human life, Session 2) Students' awareness of their rights, Session 3) Behaviors based on self-expression and alternative behaviors, Session 4) Anger, Session 5) Advantages and disadvantages of anger, Session 6) The skill of saying "no", Session 7) Criticism; role-playing method, Session 8) A review of the material presented in previous sessions.

Stress management training program were also as follow: Session 1) Introduction to the program, stressors and stress responses, the effects of overcoming stress, Session 2) Stress in adolescents, recognizing their stress, recognizing the stressors, Session 3) Stress in adolescent girls, mechanisms of stress management, muscle relaxation, stress and breathing awareness, visualization, communication of thoughts and emotions, Session 4) Principles and behaviors of stress reduction in adolescents, the role of family in reducing stress in adolescent girls, negative thinking and cognitive distortions, Session 5) Stress treatment in adolescents, rational thinking, effective coping, Session 6) Ways to control and treat stress in adolescents, anger management training, Session 7) How to live with stress, expression training, visualization and meditation, social support, program review, Session 8) A review of lessons.

The data collection tool was the standard high-risk behaviors questionnaire designed by Shahram Mohammadkhani (19). The tool includes two sections: demographics and high-risk behaviors. The prevalence of seven groups of high-risk behaviors were assessed: (1 smoking and hookah use, (2 alcohol consumption, (3 psychotropic substance use, (4 aggressive behaviors, (5 suicidal thoughts and attempts, (6 running away, (7 relations with the opposite sex.

The questionnaire is a self-assessment tool and consists of 42 items that are used to determine the baseline of high-risk behaviors adolescents have committed in the past. Each section includes questions about the first high-risk behavior, the rate of high-risk behaviors in a lifetime, during the last 12 months and during the last month, and the desire to do it in the future. The questionnaire is arranged and scored in 5-, 7- and 8-point Likert scale based on the type of items. The reliability of the tool based on Cronbach's alpha has been reported to be 0.87 (19).



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After completing the questionnaires, the extracted data were entered into SPSS version 22. Significance level was considered P<0.05. Descriptive statistics were reported for quantitative normal variables as mean ± SD and for quantitative abnormal variables as median (25th percentile and 75th percentile). Inferential statistics were first performed using multivariate analysis of variance. However, since the assumptions for multivariate analysis of variance (MANOVA) were not established, non-parametric Mann-Whitney and Kruskal-Wallis tests were used to investigate the relationship between assertiveness and stress management skills training in reducing the students' high-risk behavior.

## Results

In the present study, mean ± SD of the age of female students in the groups of stress management, assertiveness and control were 14.5 ± 0.5, 14.5 ± 0.5, and 14.3 ± 0.4, respectively.

Table 1 shows that the mean ± SD of the variable of high-risk behaviors in the post-test in the groups of stress management, assertiveness and control was 7.100 ± 2.2, 8.99 ± 2.3, and 5.98 ± 8.2, respectively, which has increased compared to the pre-test. A review of the results obtained from the implementation of training packages also shows that the desired training intervention has not been effective. However, the result is significant in terms of substance use. The mean ± SD of the variable of substance use in the post-test in the control group was 3.4 ± 2.8 more than the two groups of stress management and assertiveness.

In order to evaluate the effect of assertiveness training on reducing students' high-risk behavior, first the homogeneity of assumptions of covariance matrices was assessed using Box's M test and the homogeneity of error variance was assessed using Levene's test. The results of Box's M test showed that the homogeneity of the assumption of covariance matrices was not established (Box's M=73.5, F=23.6, P=0.0001). In addition, the results showed that the homogeneity of the assumption of error variance in assertiveness and control groups in the variables of high-risk behaviors (F=10.7, P=0.002) and substance use (F=7.23, P=0.001) was not established. Therefore, since the assumptions of multivariate analysis of variance were not established and due to the lack of normality of dependent variables between the two groups of assertiveness (P=0.001) and control (P=0.001), non-parametric Mann-Whitney test was used.

**Table 1.** Descriptive statistics of high-risk behaviors among female students in pre-test and post-test.

| Variable | | Groups | | |
|---|---|---|---|---|
| | | Stress management | Assertiveness | Control |
| High-risk behaviors | | | | |
| | Pre-test | 4.47 ± 1.5 | 7.5 ± 1.9 | 7.5 ± 4.7 |
| | Post -test | 7.100 ± 2.2 | 8.99 ± 2.3 | 5.98 ± 2.8 |
| Substances use | | | | |
| | Pre-test | 0 ± 0 | 0 ± 0 | 1.3 ± 4.7 |
| | Post-test | 1.1 ± 1 | 2 ± 0 | 3.4 ± 8.2 |

Data are shown as men ± SD.

Table 2 shows that high-risk behaviors in the assertiveness group were less than the control group. However, substance use in the group of assertiveness was more than the control group.

In order to evaluate the effect of stress management training on reducing students'



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high-risk behavior, first the homogeneity of assumptions of covariance matrices was assessed using Box's M test and the homogeneity of error variance was assessed using Levene's test. The results of Box's M test showed that the homogeneity of the assumption of covariance matrices was not established (Box's M=73.5, F=23.6, P=0.0001). In addition, the results of the homogeneity of the assumption of error variance in stress management and control groups in the variables of high-risk behaviors (F=12.7, P=0.001) and substance use (F=5.1, P=0.03) was not established. Therefore, since the assumptions of multivariate analysis of variance were not established and due to the lack of normality of dependent variables between the two groups of assertiveness (P=0.001) and control (P=0.001), non-parametric Mann-Whitney test was used.

**Table 2.** Analysis of Mann-Whitney test for the effect of assertiveness training in reducing high-risk behavior of girls in the first grade of high school.

| | Groups | | |
|---|---|---|---|
| Variable | Assertiveness | Control | P value |
| High-risk behaviors | 100(98-102) | 102(101.5-102) | 0.03 |
| Substances use | 4(2-4) | 2(2-2) | 0.001 |

Data are shown as median ($25^{th}$-$75^{th}$ Percentile).

Performing high-risk behaviors in the stress management group did not show a significant difference with the control group, meaning that the results of training intervention in this factor did not have the necessary consistency and high-risk behaviors in this group did not change after training. However, substance use in the stress management group was lower than the control group, which was statistically significant (P=0.001) (Table 3). The results of the intervention had the necessary consistency.

**Table 3.** Analysis of Mann-Whitney test for the effect of stress management training in reducing high-risk behavior of girls in the first grade of high school.

| | Groups | | |
|---|---|---|---|
| Variable | Stress management | Control | P value |
| High-risk behaviors | 102(102, 99.7) | 102(101, 102) | 0.7 |
| Substances use | 2(0, 2) | 4(2, 4) | 0.001 |

Data are shown as median ($25^{th}$-$75^{th}$ Percentile).

In order to evaluate the effect of assertiveness and stress management training on reducing students' high-risk behavior, first the homogeneity of assumptions of covariance matrices was assessed using Box's M test and the homogeneity of error variance was assessed using Levene's test. The results of Box's M test showed that the homogeneity of the assumption of covariance matrices was not established (Box's M=73.5, F=23.6, P=0.0001). In addition, the results of the homogeneity of assumption of error variance in stress management and control groups in the variables of high-risk behaviors (F=11.3, P=0.001) and substance use (F=17.8, P=0.001) was not established. Therefore, since the assumption of multivariate analysis of variance was not established and due to the lack of normality of dependent variables between the three groups of stress management (P<0.001), assertiveness (P<0.001), and control (P<0.001), non-parametric Kruskal-Wallis test was used.

High-risk behaviors in the groups of stress management and assertiveness training showed a significant difference compared to



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the control group (P=0.03), meaning that the results of stress management and assertiveness training after the test and three month after the course were significant and the results of training intervention in the component of assertiveness showed consistency in the training group, which reduced high-risk behaviors significantly, but in the stress management group, the results showed lack of consistency and significance. Furthermore, substance use in the groups of stress management and assertiveness was less than the control group, which was statistically significant (P=0.001) (Table 4).

**Table 4.** Kruskal-Wallis test analysis for stress management and assertiveness training in reducing high-risk behavior of girls in the first grade of high school.

| | Groups | | | |
|---|---|---|---|---|
| Variable | Stress management | Assertiveness | Control | P value |
| High-risk behaviors | 102(99.7, 102) | 100(98, 102) | 102(101, 102) | 0.03 |
| Substances use | 2(0, 2) | 2 | 4(2, 4) | 0.0001 |

Data are shown as median ($25^{th}$-$75^{th}$ Percentile).

## Discussion

The present study was conducted to determine the effect of stress management and assertiveness training on reducing high-risk behaviors in adolescent girls. The findings of the present study showed that life skills training, as a person-centered preventive approach to empower adolescents, was able to make significant changes in the mean scores of participants in this study.

In general, the rate of high-risk behaviors has changed significantly in the post-test and high-risk behaviors have decreased compared to the control group. However, in terms of substance use, we see an increase in substance use in the training group compared to the control group.

This difference is probably due to lower awareness of female students with high-risk behaviors about the health risks of substance use.

The most important problem is the inability to say "no" to the suggestion of friends and peers to perform high-risk behaviors. Training them about resistance skills and saying "no" to the pressure of friends can be effective in this regard. This skill was taught to students in assertiveness group, which showed noteworthy effects. The results regarding this group showed an increase in substance use, which may be due to the influence of peers and the pressures from the environment, inability to make decisions, assertiveness, and lack of ability to say "no" to friends.

The results of the present study were consistent with the results of the studies of Khosroshahi Kolaei et al. (20); Rezaei (21); Gargari et al. (22), which evaluated the effectiveness of life skills in reducing high-risk behaviors.

The results of stress management group indicate the ineffectiveness of training on reduction of high-risk behaviors compared to the control group. However, substance use in the in the stress management group was decreased. We witnessed a decrease in substance use in the stress management group compared to the control group. The results of the present study are in line with the results of the studies by Bahadori Khosrowshahi (23) and Gholami Jam et al. (24).

The participants in the present study are only girls, whose experiences are definitely different from a male group. Afrasiabi and Akbarzadeh (26) also point to different strategies for managing stress in girls and boys.



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Studies have reported high levels of stress for trying new things in both genders. However, girls have significantly higher stress than boys in almost all cases, and their mental health problems are more severe than those of boys. In the present study, the average pre-test scores of the stress management group in reducing high-risk behaviors were lower than the post-test scores. This may be due to different and significant reasons: lack of familiarity of female students with different types of high-risk behaviors before training, and poor self-esteem.

Neglecting the differences between girls and boys in the questionnaire items, embarrassment or fear of giving real answers to the questions, insufficient attention to the questions of the questionnaire during the pre-test, not taking the study and training seriously, giving casual answers to the pre-test questionnaire questions, lack of understanding and paying attention to appropriate and accurate answers after the training, and most importantly, the concurrence of the training course and completing the post-test questionnaire with the spread of COVID-19 coronavirus and severe stress in students showed noteworthy effects on the post-test results.

Pre-test and post-test results and follow-up results show that training intervention was not similarly effective in the two scales. The findings of the present study show that the most important source of information for students about the dangers of high-risk behaviors and the benefits of preventing such behaviors are the mass media, parents, educators and peers.

Self-reported data collection was the most important limitation of this study. Another limitation of the present study was sampling only among female students. Therefore, its results cannot be generalized to all students. Moreover, since the present study examined several high-risk behaviors simultaneously, it could not examine the relationship between all the high-risk components and the target demographic indicators. In addition, during the implementation of this study, the world and Iran were exposed to the COVID-19 coronavirus, whose effects on the results of the study must not be neglected.

## Conclusion

Based on finding of this study Simultaneous implementation of assertiveness and stress management skills training with emphasis on substance use and high-risk behaviors in female students can have satisfactory effects. It is necessary to pay attention to acquiring assertiveness and coping skills in children by the family and teaching these skills in schools to prevent the occurrence of high-risk behaviors in adolescents.

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## Conflict of interest

There is no conflict for the study.

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