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The Impact of Group Emotion Regulation Training Based on Gross's Model on Reducing Depression and Risky Behaviors in Depressed Adolescents

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A B S T R A C T

Objective: The present study aimed to examine the effectiveness of group emotion regulation training based on Gross's model in reducing depression and risky behaviors in adolescents.

Methods and Materials: This semi-experimental research employed a pre-test–post-test control group design with a follow-up period. The research population consisted of depressed adolescent girls who referred to private counseling and psychological services centers in Isfahan in 2022. From this population, 30 individuals were selected through convenience sampling and randomly assigned to the experimental and control groups. The subjects responded to the Beck Depression Inventory (1996) and the Risky Behaviors Questionnaire by Rajabi and Shafi'i (2011) during the pre-test, post-test, and follow-up stages. The experimental group received 8 sessions of 60-minute emotion regulation training based on Gross's model, while the control group did not receive any intervention. Data were analyzed using repeated measures analysis of variance with SPSS22 software.

Findings: According to the results, the within-group variable had a significant effect on depression and risky behaviors (addiction and substance abuse, risky sexual behaviors, smoking, violence, alcohol consumption, and unhealthy eating patterns) ($p \leq 0.001$). This means there was a significant difference in depression and risky behaviors scores and their dimensions between the groups in the post-test and follow-up compared to the pre-test. The between-group intervention variable also had a significant effect on reducing depression and risky behaviors and their dimensions ($p \leq 0.001$).

Conclusion: Based on these findings, it is recommended that specialists use group emotion regulation training to reduce depression and risky behaviors.

Keywords: *Emotion Regulation Training, Depression, Risky Behaviors, Adolescents, Gross's Model.*

1. Introduction

Adolescence is the most crucial stage of life, encompassing the period from puberty to adulthood (Leyhr et al., 2018). During this stage, individuals experience the most sensitive events of their lives (Ciranka & van den Bos, 2019), with depression being one of the most common negative experiences (Copeland et al., 2014). Depression is a mood disorder characterized by diagnostic features such as a sad mood, feelings of worthlessness, or irritability, accompanied by physical and cognitive changes that significantly impact an individual's functional capacity (American Psychiatric Association, 2022). It is estimated that depression is prevalent in more than 15% of adolescents, typically occurring between the ages of 12 to 18 (Mojs et al., 2015). Epidemiological studies suggest that approximately 23% of Iranian adolescents are depressed, with 78% of girls and 57% of boys aged 13 to 17 years in Isfahan being identified as depressed (Madmoli et al., 2016). Depression in adolescence also increases vulnerability to other issues (Gore et al., 2011), leading to cognitive and social developmental disorders, academic decline, and legal entanglements (Copeland et al., 2014), and is associated with destructive health behaviors (Shensa et al., 2017).

On the other hand, the rapid physical, psychological, and social changes during adolescence create multiple challenges, such as the desire for independence and the illusion of invulnerability (Blakemore & Mills, 2014). Independence-seeking provides opportunities to explore potentially pleasurable experiences (Somerville et al., 2011), while the optimistic bias of invulnerability fosters an exaggerated sense of uniqueness and personal myth (Shaffer, 1996). This creates a belief in adolescents that they are immune to danger, leading to reckless and risky behaviors (Stone et al., 2012). Therefore, there is a high likelihood of risky behaviors during this period (Coppersmith et al., 2017; Kouhbanani nejad & Sanatkhah, 2019), which is even higher in depressed adolescents (Shensa et al., 2017).

Risky behaviors negatively impact overall development and health, potentially disrupting growth or hindering significant peer experiences (Kecojevic et al., 2019). These behaviors are defined differently based on social norms across various societies (Piche et al., 2018). They may harm individuals or their property and are often categorized under juvenile delinquency, including legal violations such as property destruction, theft, violence, smoking, alcohol use, substance abuse, school truancy, arson, rape, or threats (Bouvette-Turcot et al., 2020). Studies have shown that most risky behaviors, including smoking, alcohol, substance use, and unsafe sexual activities, start before age 18 (Tariq & Gupta, 2023) and often overlap, exacerbating one another (Shamsipour et al., 2012). Despite extensive efforts by researchers, families, and governments to understand, prevent, and manage risky behaviors, studies in Europe and North America indicate that 18% of youth over 15 smoke at least once a week, 21% consume alcohol, and 26% have had sexual experiences (Platt et al., 2016). Studies in Iran have also shown alarming prevalence rates of risky behaviors such as smoking, hookah use, consumption of high-fat and low-fiber foods, alcohol and drug use, risky sexual behaviors, and violence among adolescents (Esmaielzadeh et al., 2014), highlighting the necessity for psychologists and counselors to provide interventions to reduce these behaviors.

Various theories explain the etiological basis of depressive disorders, emphasizing cognitive, emotional, behavioral, and social causes (Remes et al., 2021). Among these, some theorists believe that because emotion regulation plays a pivotal role in normal development and its deficiency is a significant factor in psychological harm, maladaptive emotion regulation styles and behaviors with emotional sources can be major predictors of risky behaviors. Individuals lacking the necessary skills to cope with emotional experiences are more likely to engage in risky behaviors when managing and controlling negative emotions (Borjali et al., 2015). Therefore, it can be expected that group emotion regulation training will impact reducing risky behaviors in adolescents.

Gross (2002) presented an emotion regulation model based on the quality of emotion generation. The basic model of this training includes five stages: situation, attention, appraisal, response, and outcome (Gross, 2002). According to Gross, each stage of the emotion generation process has a potential regulatory goal, and emotion regulation skills can be applied at different points in the process (Gross, 2002; Gross & Thompson, 2007). Each stage of Gross's emotion regulation model includes a series of adaptive and maladaptive strategies, with those experiencing emotional problems using maladaptive strategies such as rumination and avoidance more frequently. Thus, this intervention requires modifying or eliminating maladaptive strategies and teaching adaptive emotion expression strategies (Gross, 2002; Gross & Thompson, 2007).

A review of studies has shown the effectiveness of group emotion regulation training in improving emotional problems (Ramezanzadeh et al., 2014), enhancing effective

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coping (Volkaert et al., 2020), and reducing risky behaviors such as addiction tendencies, impulsive behaviors in smokers (Asgari & Matini, 2020), aggression and impulsivity in substance-dependent individuals (Borjali et al., 2015), and depression in adolescents with destructive mood dysregulation disorder (Sheybani et al., 2018). This review indicates that while the impact of group emotion regulation training on depression and certain aspects of risky behaviors such as smoking, substance abuse, and violence in adolescents has been confirmed, no study has examined the effect of this training on other components of risky behaviors, such as unhealthy eating patterns, alcohol consumption, or risky sexual behaviors. Therefore, this study aimed to investigate the effectiveness of group emotion regulation training based on Gross's model on depression and risky behaviors in adolescents.

The hypotheses of this study are as follows:

- Group emotion regulation training based on Gross's model is effective in reducing adolescent depression.
- Group emotion regulation training based on Gross's model is effective in reducing risky behaviors in adolescents.

2. Methods and Materials

2.1. Study Design and Participants

The present study was a semi-experimental research with a pre-test, post-test control group design and a 45-day follow-up. The statistical population included depressed adolescent girls referred to counseling and psychological services centers in Isfahan in the second half of 2021, who were diagnosed with depression and scored above 20 on the Beck Depression Inventory (1996). From this population, 30 depressed adolescents were purposefully selected based on inclusion and exclusion criteria. The inclusion criteria were: 1. Age range of 13-17 years, 2. Literacy in reading and writing, 3. Absence of acute or chronic psychiatric disorders in the past week (confirmed by a psychiatrist or clinical psychologist), 4. No concurrent psychological treatments, 5. No psychiatric medication use in the past three months (as reported by the participants), and 6. No physical illnesses (diagnosed by a doctor) that would prevent participation in the research plan. The exclusion criteria were: 1. Unwillingness to continue the research, 2. Failure to complete the tasks provided in the sessions, and 3. Absence from more than two training sessions. Considering a minimum of 15 participants per group is recommended for semi-experimental studies.

To select the sample group, a call was initially made to depressed adolescents referred to the Pardis Psychological Center in Isfahan in the second half of 2022, who had been diagnosed with depression, to participate in a research plan aimed at reducing depressive symptoms. They were asked to contact the researcher. From these individuals (63 in total), 30 who showed the most depressive symptoms (scores of 20 and above on the Beck Depression Inventory) were purposefully selected based on inclusion and exclusion criteria. The selected individuals were randomly assigned to two groups of 15, experimental and control, and the research questionnaires were administered as pre-tests. After assigning participants to the research groups, the experimental group received 8 weekly 60-minute sessions of group emotion regulation training over two months. The control group did not receive any intervention during this period. After completing the training sessions and two months later, the research questionnaires were re-administered to both groups. It is worth noting that the group emotion regulation training sessions were conducted over eight 60-minute sessions once a week for eight weeks, aiming to address self-regulation issues in adolescents in seven steps: situation selection, self-assessment, situation modification, attention deployment, cognitive change, response modulation, and application assessment (Gross, 2002; Gross & Thompson, 2007). The training was conducted by the researcher with a master's degree in group emotion regulation training and at least five years of expertise in this field. Ethical considerations were ensured by informing all participants that the information obtained from this study would only be used for thesis results and would remain confidential until the end. They were also reminded that they could withdraw from the study at any time.

2.2. Measures

2.2.1. Depression

To identify depressed adolescents, the Beck Depression Inventory was used. This inventory fully aligns with DSM criteria and measures the severity of depression in individuals aged 13 and above, designed by Beck, Steer, and Brown (1996). It assesses symptoms over the past two weeks with 21 items scored from 0 to 3. Beck and Steer's classification for depression severity is as follows: no symptoms (0-9), mild depression (10-18), moderate depression (19-29), and severe depression (30-63). The convergent validity of the Beck Depression Inventory-II

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with the Hamilton Depression Rating Scale-II is 0.71. The test-retest reliability of this inventory after one week is reported as 0.93. The psychometric properties of this inventory were also studied on an Iranian sample of 94 individuals. The reliability of this inventory was obtained using Cronbach's alpha (0.91), test-retest method (0.94), and split-half method (0.89) (EsmaeiliShad et al., 2020; Sheybani et al., 2018). In the present study, the Cronbach's alpha coefficient for this tool was 0.81.

2.2.2. Risky Behaviors

This questionnaire was developed by Rajai and Shafi'i in 2011. It contains 61 items and assesses six risky behaviors in adolescents, including addiction and substance abuse (items 25-27-35-37-39-57-60), risky sexual behaviors (items 2-24-26-32-40-41), smoking (items 5-7-10-12-15-17-20-22-51-55), violence (items 1-3-4-6-8-11-13-14-16-19-21-28-29-31-33-36-42-45-47-49-54-56-58), alcohol consumption (items 9-18-23-34-46), and unhealthy eating patterns (items 30-38-43-44-48-50-52-53-59-61) on a five-point Likert scale (0 = never to 4 = always). The minimum score for this questionnaire is 0, and the maximum score is 244, with higher scores indicating more risky behaviors. In Ghasemi's study (2013), the content validity of the test was confirmed by experts and professors, and its reliability was reported as 0.81 using Cronbach's alpha (Kouhbanani nejad & Sanatkhah, 2019). In the present study, the Cronbach's alpha coefficient for this tool was 0.79.

2.3. Intervention

2.3.1. Group Emotion Regulation Training Based on Gross's Model

Session 1: Introduction and Establishing Connections

In the first session, group members will get to know each other and establish mutual relationships with the group leader (psychologist) and among themselves. The primary and secondary goals of the group will be discussed, and members will engage in conversations about these goals. The logic and stages of the intervention will be explained, and the framework and rules for participating in the group will be outlined. This session aims to create a foundation for trust and collaboration among participants.

Session 2: Situation Selection

This session focuses on understanding various emotions, sharing emotional experiences, recognizing bodily changes associated with each emotion, and learning about facial expressions and behaviors resulting from emotional states. Participants will be encouraged to identify different aspects of their emotions and understand the short-term and long-term effects of these emotions. Homework involves identifying the dimensions of their own emotions and their impacts.

Session 3: Self-Assessment

Participants will identify their emotional experiences, assess their emotional vulnerability, and recognize their current emotion regulation strategies. This session aims to build self-awareness about their emotional states and how they cope with them. Homework involves examining the emotional strategies they used during the week.

Session 4: Situation Modification

Participants will list their individual, social, and relational goals, review their relationships with others, and identify personal and interpersonal situations that need improvement. A list of positive activities will be prepared, and skills in problem-solving, communication, assertiveness, and conflict resolution will be taught. Homework involves reporting on the use of strategies discussed during the week.

Session 5: Attention Deployment

The focus of this session is on discussing participants' emotional experiences, the challenges and obstacles in applying the skills, and the use of new skills. Participants will learn how to stop rumination and worry and practice attention skills. Homework involves reporting on the use of these strategies during the week.

Session 6: Cognitive Change

In this session, the role of the mind (mental processing and a set of thoughts, beliefs, and memories) in generating, maintaining, increasing, and decreasing emotional responses will be discussed. Participants will identify incorrect appraisals and their effects on emotional states and will be taught the strategy of reappraisal. Homework involves reporting on the use of reappraisal strategies during the week.

Session 7: Response Modulation

Participants will discuss using mind control skills and reappraisal, creating emotional states, identifying the extent and manner of using inhibition strategies, and examining their emotional consequences. Training and practice will be provided for emotional expression, behavioral modification through environmental reinforcers, emotional release, altering emotional outcomes through opposite actions during depression, and achieving physical relaxation using Jacobsen's relaxation technique. Homework involves practicing relaxation techniques.

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Session 8: Evaluation and Application

In the final session, participants will revisit their individual and group goals, rate the achievement of each goal on a scale from 0 to 10, and highlight each member's successes in reaching these goals. The session will conclude with gratitude and appreciation for the participants' involvement. No specific homework is assigned, but participants will be encouraged to continue using the skills learned in their daily lives.

2.4. Data analysis

After data collection, descriptive statistics such as mean and standard deviation were used at the descriptive level, and repeated measures analysis of variance followed by the Bonferroni post hoc test was used at the inferential level. The data were analyzed using SPSS version 24. The acceptable significance level for the present study was set between 0.001 and 0.05.

3. Findings and Results

In this section, the data obtained from the questionnaires administered during the pre-test, post-test, and follow-up stages for the experimental and control groups were analyzed using appropriate statistical methods. The results are presented in two parts: descriptive analysis and inferential analysis. Initially, it should be noted that the mean age of the experimental group was 14.13 ± 1.35, and the mean age of the control group was 14.13 ± 1.17. Table 2 presents the means and standard deviations of risky behavior scores in the pre-test, post-test, and follow-up stages for the experimental group (emotion regulation group training) and the control group. Based on the results in this table, it is observed that the post-test scores for depression and risky behaviors, including addiction and substance abuse, risky sexual behaviors, smoking, violence, alcohol consumption, and unhealthy eating patterns, were lower in the experimental group compared to the control group. This indicates that group emotion regulation training has had an impact on improving risky behaviors. Additionally, the follow-up scores did not change significantly, suggesting that the effects of the training were enduring. To determine whether these changes observed in the post-test and follow-up stages were statistically significant, repeated measures ANOVA was used.

Table 1

Means and Standard Deviations of Depression and Risky Behaviors in Experimental and Control Groups by Assessment Stages

Variables	Assessment	Emotion Regulation Group Training	Control
		M (SD)	M (SD)
Depression	Pre-test	29.80 (3.27)	29.53 (4.29)
	Post-test	27.93 (3.76)	29.66 (3.94)
	Follow-up	27.66 (3.39)	29.93 (3.97)
Addiction and Substance Abuse	Pre-test	9.53 (1.99)	9.00 (1.41)
	Post-test	8.13 (1.40)	9.13 (1.40)
	Follow-up	8.46 (1.30)	9.20 (1.42)
Risky Sexual Behaviors	Pre-test	7.73 (1.79)	7.20 (1.69)
	Post-test	7.00 (1.64)	7.21 (1.76)
	Follow-up	7.06 (1.43)	7.26 (1.66)
Smoking	Pre-test	13.20 (2.62)	12.86 (2.44)
	Post-test	11.80 (2.21)	12.80 (2.50)
	Follow-up	11.93 (2.05)	12.87 (2.55)
Violence	Pre-test	29.13 (2.77)	30.40 (2.55)
	Post-test	27.46 (2.61)	30.29 (2.50)
	Follow-up	27.80 (2.39)	30.66 (2.58)
Alcohol Consumption	Pre-test	6.88 (1.59)	6.40 (1.80)
	Post-test	5.86 (1.24)	6.32 (1.72)
	Follow-up	6.00 (1.19)	6.46 (1.68)
Unhealthy Eating Pattern	Pre-test	12.53 (2.69)	12.93 (2.63)
	Post-test	11.06 (2.25)	12.73 (2.12)
	Follow-up	11.05 (2.31)	12.80 (1.89)
Risky Behaviors	Pre-test	78.66 (6.20)	78.80 (3.56)
	Post-test	71.33 (4.70)	78.73 (3.21)
	Follow-up	72.33 (4.23)	79.26 (2.86)

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Table 2 provides a summary of the results of repeated measures ANOVA for the variables of depression and risky behaviors. Before conducting the repeated measures ANOVA, the assumptions for this analysis were checked. The Shapiro-Wilk test showed that the distribution of data for depression and risky behaviors scores was normal in the pre-test stage ($p > .05$). The Levene's test also indicated that the equality of error variances between the two research groups was met ($p > .05$). The M-box test confirmed the equality of the variance-covariance matrices ($p > .05$). The assumption of sphericity was also met, as indicated by the Mauchly's test of sphericity ($p < .05$). Therefore, repeated measures ANOVA could be used.

Table 2

Summary of Repeated Measures ANOVA Results

Variable	Source	F	Significance	Eta Squared	Power
Depression	Time	18.486	.0001	.311	1.000
	Group	0.937	.004	.143	.901
	Time × Group	5.288	.001	.201	.964
Addiction and Substance Abuse	Time	6.867	.008	.197	.891
	Group	12.730	.0001	.442	1.000
	Time × Group	10.067	.001	.282	.941
Risky Sexual Behaviors	Time	5.187	.009	.156	.808
	Group	60.229	.0001	.290	1.000
	Time × Group	6.094	.004	.179	.831
Smoking	Time	9.864	.0001	.261	.979
	Group	72.918	.015	.152	.970
	Time × Group	9.864	.0001	.261	.950
Violence	Time	4.680	.013	.143	.864
	Group	7.041	.013	.201	.826
	Time × Group	5.847	.011	.173	.855
Alcohol Consumption	Time	4.030	.046	.098	.764
	Group	16.784	.0001	.249	1.000
	Time × Group	3.490	.050	.111	.729
Unhealthy Eating Pattern	Time	13.271	.0001	.322	.997
	Group	12.352	.013	.178	.816
	Time × Group	8.413	.001	.231	.956
Risky Behaviors	Time	29.890	.0001	.516	1.000
	Group	11.066	.0001	.338	.994
	Time × Group	32.415	.0001	.537	1.000

The results of Table 2 show that the within-group variable (time factor) significantly affects depression and risky behaviors (addiction and substance abuse, risky sexual behaviors, smoking, violence, alcohol consumption, and unhealthy eating patterns) ($p \leq .001$). That is, there is a significant difference between the pre-test, post-test, and follow-up scores for depression and risky behaviors and their dimensions. The between-group intervention variable also significantly reduced depression and risky behaviors and their dimensions. This indicates that group emotion regulation training has reduced the scores of depression and risky behaviors and their dimensions (addiction and substance abuse, risky sexual behaviors, smoking, violence, alcohol consumption, and unhealthy eating patterns) compared to the control group. Table 4 presents the results of the Bonferroni post-hoc test comparing the adjusted means of the assessment stages (pre-test, post-test, and follow-up) for depression and risky behaviors and their dimensions.

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Table 3

Results of Bonferroni Post-Hoc Test for Depression and Risky Behaviors at Research Stages

Research Variables	Stage Comparison	Mean Difference	Significance
Depression	Pre-test-Post-test	1.87	.001
	Pre-test-Follow-up	2.14	.005
	Post-test-Follow-up	0.270	.928
Addiction and Substance Abuse	Pre-test-Post-test	0.633	.005
	Pre-test-Follow-up	0.577	.004
	Post-test-Follow-up	-0.20	.160
Risky Sexual Behaviors	Pre-test-Post-test	0.367	.019
	Pre-test-Follow-up	0.300	.020
	Post-test-Follow-up	-0.067	.998
Smoking	Pre-test-Post-test	0.700	.0001
	Pre-test-Follow-up	0.633	.023
	Post-test-Follow-up	-0.067	.998
Violence	Pre-test-Post-test	0.833	.010
	Pre-test-Follow-up	0.733	.042
	Post-test-Follow-up	-0.300	.446
Alcohol Consumption	Pre-test-Post-test	0.333	.023
	Pre-test-Follow-up	0.334	.050
	Post-test-Follow-up	-0.100	1.000
Unhealthy Eating Pattern	Pre-test-Post-test	0.833	.001
	Pre-test-Follow-up	0.800	.004
	Post-test-Follow-up	-0.033	1.000
Risky Behaviors	Pre-test-Post-test	3.700	.0001
	Pre-test-Follow-up	2.933	.0001
	Post-test-Follow-up	-0.767	.079

The findings in Table 3 show that group emotion regulation training significantly impacted depression and risky behaviors and their dimensions (addiction and substance abuse, risky sexual behaviors, smoking, violence, alcohol consumption, and unhealthy eating patterns) in both the post-test and follow-up stages. As the results of this table indicate, the "mean difference between pre-test and post-test" and "mean difference between pre-test and follow-up" are greater and more significant than the "mean difference between post-test and follow-up," indicating that group emotion regulation training impacted depression and risky behaviors in the post-test stage and continued this impact in the follow-up stage.

4. Discussion and Conclusion

The aim of this study was to investigate the effectiveness of group emotion regulation training based on Gross's model on depression and risky behaviors in adolescents. The results regarding the first hypothesis showed that group emotion regulation training based on Gross's model effectively improved symptoms in depressed adolescents. This part of the findings aligns with previous studies on the effectiveness of emotion regulation training based on Gross's model on adolescent depression (Holmqvist Larsson et al., 2019), improving depressive disorders in students with disruptive mood dysregulation disorder (Holmqvist Larsson et al., 2019; Sheybani et al., 2018), and depression in adolescents with destructive mood dysregulation disorder (Sheybani et al., 2018).

The lasting effect of group emotion regulation training in reducing depressive symptoms in adolescents can be explained by the fact that emotion regulation training can play an important role in reducing physical symptoms, anxiety, depression, and social functioning disorders (levels of mental health) by making adolescents aware of positive and negative emotions, accepting and expressing them in a timely manner. Previous studies have shown that high levels of positive emotions and reduced negative emotions play an important role in positive self-judgment and perception (Ramezanzadeh et al., 2014; Volkaert et al., 2020), which can be expected to reduce depression. Other studies have shown that one of the factors related to depression is a kind of disorder in using emotion regulation strategies (Sheybani et al., 2018), and according to Gross (2002), this disorder can be a key factor in causing anxiety and depression (Gross, 2002). Therefore, since the aim of group emotion regulation training is emotion management, and the goal of emotion management is to increase adaptability, and studies in this

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area have also stated that modifying emotion strategies can reduce negative emotions and depression (Volkaert et al., 2020), it can be explained that this training, by increasing adolescents' awareness of positive and negative emotions and teaching them to evaluate their reactions and those of others to emotions and examining ways that are effective in reducing the intensity and duration of negative emotional responses, caused adolescents to stop immersing themselves in negative past thoughts and blame themselves less for negative attitudes and judgments about themselves (Gross, 2002). This training changed adolescents' evaluations of various events, causing them to put aside negative judgments about themselves and others that lead to negative emotions and effectively deal with individuals, events, and dysfunctional attitudes toward themselves and others, which increases depression. Putting aside negative judgments about oneself and effectively dealing with negative emotions and increasing self-control during treatment have reduced depression.

In the second part of the study, the results showed that group emotion regulation training based on Gross's model positively affected reducing risky behaviors in depressed adolescents. In this regard, Asgari and Matini (2019) also showed that group emotion regulation training reduces impulsive behaviors in smokers. Borjali et al. (2015) reported that emotion regulation strategies based on Gross's model reduce the level of aggression in substance-dependent individuals (Asgari & Matini, 2020). Ramazanzadeh et al. (2015) stated that this training course can help to modify and adjust the emotional reactions of adolescents at risk (Ramezanzadeh et al., 2014). Moreover, Volkert et al. (2019) confirmed the use of adaptive strategies in stressful situations after completing the emotion regulation training course (Volkaert et al., 2020). Finally, te Brink et al. (2021) also showed that this training reduces externalizing disorders in adolescents (te Brinke et al., 2018).

To explain the lasting effect of group emotion regulation training in reducing risky behaviors in depressed adolescents, it can be said that group emotion regulation training may have led to reduced risky behaviors by modifying and adjusting emotional problems. Since maladaptive emotion regulation styles, due to the inability to cope with their emotional experiences, engage more in risky behaviors when managing and controlling negative emotions (Borjali et al., 2015), it can be expected that group emotion regulation training can have beneficial effects in modifying risky behaviors through effective emotional management. In this regard, Volkaert et al. (2019) showed that this training can increase effective coping, and thus it can be said that achieving effective emotion management includes soothing oneself during distress, self-control, anger management, impulse control, expressing emotions at the right time and place, avoiding prolonged emotions, managing inevitable frustrations and problems, preventing negative emotions from overshadowing judgment and problem-solving abilities, increasing frustration tolerance, and valuing oneself. They showed that this training can increase effective coping, and this training course allowed depressed adolescents to use appropriate emotion regulation strategies in situations where the risk of engaging in health-destructive behaviors is high and with reduced attention bias, be less inclined towards such behaviors (Volkaert et al., 2020). The ability to regulate emotions allowed adolescents to control their emotions in tempting situations of risky behaviors and even resist peer pressure more effectively (Gross & Thompson, 2007). Group emotion regulation training helped depressed adolescents to act problem-focused when facing their problems and be less impulsive in seeking peace and relieving distress, which caused these adolescents to solve their problems more problem-focused and be less inclined towards risky behaviors.

5. Limitations & Suggestions

The results of the study showed that group emotion regulation training could reduce depression and risky behaviors, including addiction and substance abuse, risky sexual behaviors, smoking, violence, alcohol consumption, and unhealthy eating patterns in depressed adolescent girls. Therefore, based on the results obtained, it is suggested that specialists in the field of adolescence use group emotion regulation training to reduce depression and risky behaviors in adolescent girls. It should be noted that generalizing the results is limited since this study was conducted on depressed adolescent girls who referred to psychological centers in Isfahan, so generalizing the results to other groups is limited. The inability to randomly sample from the entire adolescent population and the lack of homogenization in the selection of subjects have made the results of this study not generalizable to other areas. Additionally, the simultaneous conduct of the study with the COVID-19 pandemic posed limitations such as class closures, difficulty accessing participants, and challenges in adhering to health protocols. In light of the mentioned limitations, it is suggested that similar studies be conducted in other cities with different

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cultures and on depressed adolescent boys to provide a basis for comparison.

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Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Declaration of Interest

The authors of this article declared no conflict of interest.

Ethics Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants. This study has an ethical ID of IR.UI.REC.1401.098, ensuring ethical principles of confidentiality, using data solely for research purposes, full freedom and discretion for participants to withdraw from the study, and accurate information provision if participants request the results, along with providing training to the control group after the experimental group's treatment.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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Authors' Contributions

All authors contributed equally.

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