

Research Paper



The Effectiveness of Behavioral Activation Therapy in Reducing Hopelessness and Suicidal Ideation in Adolescents with Major Depressive Disorder: A Quasi-Experimental Study with a Two-Month Follow-Up

Abstract

Objective The present study aimed to investigate the efficacy of Group Behavioral Activation (BA) therapy in reducing hopelessness and suicidal ideation among adolescents diagnosed with Major Depressive Disorder (MDD).

Research Methodology: This quasi-experimental study employed a pre-test, post-test, and two-month follow-up design with a control group. A purposive sample consisting of 40 adolescents aged 12 to 19 years from Kermanshah diagnosed with MDD, was randomly assigned to either an experimental group ($n = 20$; 11 boys, 9 girls) or a control group ($n = 20$; 9 boys, 11 girls). The mean age of participants was approximately 14.4 years. The experimental group participated in ten 90-minute weekly group sessions of BA, while the control group received no intervention. Data were collected using the Hopelessness Scale for Children (HSC) and the Beck Scale for Suicide Ideation (BSSI) and analyzed via Mixed-Design Analysis of Variance (Mixed ANOVA).

Findings: Results revealed a statistically significant Group $\times$ Time interaction for both primary outcomes, confirming the efficacy of the BA intervention. Compared to the control group, BA significantly reduced levels of hopelessness ($F=11.18, p<0.001, \eta^2=0.22$) and suicidal ideation ($F=29.92, p<0.001, \eta^2=0.37$). Post-hoc analyses further indicated that these therapeutic gains were sustained throughout the two-month follow-up period. Notably, the intervention demonstrated a more pronounced effect on suicidal ideation ($\eta^2=0.37$) than on hopelessness ($\eta^2=0.22$).

Conclusion: The findings suggest that Behavioral Activation is an effective and evidence-based intervention for reducing the core symptoms of depression in adolescents. Given its structured, time-limited, and group-based format, BA can be considered a highly efficient and practical approach for addressing high-risk constructs like hopelessness and suicidal ideation in clinical and educational settings.

Keywords:

Adolescents; Behavioral Activation; Hopelessness; Major Depressive Disorder; Suicidal Ideation

Introduction

Depression in adolescence is one of the most common and debilitating psychiatric disorders that severely impairs academic, social, and family functioning ([Wang et al., 2025](#)). Evidence suggests that approximately 14% of adolescents meet the diagnostic criteria for depression before the age of 18, with a global prevalence of 34% ([Rungmueanporn, 2025](#); [Shorey et al., 2022](#)). In Iran, the prevalence of depression among adolescents is reported to be as high as 37% ([Yaghoobi Siahgoorabi et al., 2024](#)). This disorder is not only associated with hopelessness and suicidal ideation ([Miller & Campo, 2021](#)), but it is also a strong predictor of chronic depression and anxiety in adulthood ([Thapar et al., 2022](#)). In most affected adolescents, depression remains undiagnosed and untreated; furthermore, even existing treatments show limited effectiveness ([Rikard-Bell et al., 2022](#)). Therefore, the development of targeted non-pharmacological interventions in the early stages is essential to prevent disease progression and its long-term consequences.

One of the devastating cognitive components closely correlated with depression is hopelessness ([Choi & Shin, 2023](#)). Hopelessness is defined as the expectation of negative events occurring or positive events not occurring, along with the belief that the individual is unable to change these conditions ([Requero et al., 2021](#)). Disillusioned adolescents often exhibit cognitive inflexibility, lose their problem-solving abilities, and envision a bleak future for themselves ([Tang et al., 2023](#)). This cognitive deadlock sets the stage for one of the most dangerous consequences of depression, namely suicidal ideation ([MacPherson et al., 2022](#)). Suicidal ideation, which include preoccupation with death and nothingness ([López, 2024](#)), is one of the most challenging clinical features of depression in adolescents ([Erbacher et al., 2023](#)). Hopelessness, as a central cognitive vulnerability factor, is the strongest predictor of suicidal thoughts and behavior in the adolescent population ([Horwitz et al., 2017](#)). The significance of this critical link is underscored by the fact that suicide is currently the second leading cause of death in this vulnerable age group ([Hink et al., 2022](#)). Many of its risk factors, including depression and hopelessness, manifest as suicidal ideation before any action is taken ([Ribeiro et al., 2018](#)). Therefore, intervention at this stage is crucial to prevent irreversible consequences.

Currently, a wide range of interventions is available for adolescents with MDD. In addition to pharmacological approaches, common psychotherapies such as Interpersonal Psychotherapy (IPT), Dialectical Behavior Therapy (DBT), and family-based interventions have been widely utilized. Among these, Cognitive-Behavioral Therapy (CBT) has long been considered the gold standard for treating adolescent depression and suicidal ideation. However, available evidence suggests that the non-response rate to these interventions remains high, with approximately 40–50% of adolescents not responding adequately ([Yin et al., 2025](#); [Eckshtain et al., 2020](#)).

The reliance of traditional CBT on complex cognitive restructuring often presents a significant challenge for adolescents who experience severe cognitive fatigue, executive dysfunction, or high levels of hopelessness, which can make cognitive challenging difficult to initiate ([Curtiss et al., 2021](#)). A significant challenge in these traditional approaches is the distinction between hopelessness and suicidal ideation. While hopelessness represents a cognitive state of "future-oriented despair," suicidal ideation is a more acute clinical risk and a terminal intent to escape that despair ([Marchetti et al., 2023](#)). Traditional therapies often target these through "inside-out" changes (changing thoughts to change mood), whereas third-wave behavioral approaches, particularly Behavioral Activation (BA), offer an "outside-in" alternative that prioritizes behavior to bypass cognitive deadlocks ([Du, 2025](#); [Bal et al., 2023](#)).

Behavioral activation is a structured treatment based on the premise that depression is the result of reduced exposure to positive environmental reinforcers and increased avoidance behaviors ([Alirahmi et al., 2024](#); [Zhu et al., 2023](#)). The primary goal of this therapy is to assist clients in identifying and engaging in rewarding activities to reconnect with environmental rewards ([Dimidjian et al., 2011](#)). The mechanism of action in reducing hopelessness and suicidal ideation works by breaking the avoidance-isolation cycle. By increasing purposeful activities, the individual experiences a sense of mastery and pleasure, which directly challenges cognitive beliefs associated with hopelessness—such as inadequacy and future deadlock. Furthermore, by improving the brain's reward system, BA modulates the desire for death and suicidal ideation ([Alirahmi et al., 2024](#); [Webb et al., 2023](#)). Numerous studies, including meta-analyses ([Huang et al., 2024](#); [Bigham lalabadi et al., 2022](#); [Eckshtain et al., 2020](#)), have confirmed the effectiveness of behavioral activation in reducing adolescent depression. There is also evidence of the effectiveness of behavioral activation therapy on key cognitive components such as hopelessness, and on behavioral components related to depression ([Taghavi et al., 2022](#); [Ghodrati Isfahani & Moradi, 2020](#); [Kanter & Puspitasari, 2012](#); [Dimidjian et al., 2011](#)). Additionally, existing research has specifically shown that behavioral activation is effective in reducing suicidal thoughts and behaviors in vulnerable populations ([Kaliush et al., 2025](#); [Hemanny et al., 2022](#); [Bedayat, E., & Askary, 2020](#); [Jafari et al., 2015](#); [Hopko et al., 2013](#)).

However, a critical research gap remains: traditional cognitive therapies often fail to address the "cognitive deadlock" and high avoidance behaviors prevalent in suicidal Iranian adolescents. Unlike previous general studies,

the present research investigates whether the "outside-in" mechanism of Behavioral Activation (BA), delivered in a group format, can bypass these cognitive barriers to provide immediate behavioral mastery and disrupt the synergistic link between hopelessness and suicidal ideation. Given the high prevalence of these symptoms in Iran and the urgent need for brief, action-oriented, and non-pharmacological treatments, testing this approach as a primary clinical strategy is essential. Thus, the present study aimed to answer the basic question: Is group behavioral activation therapy effective in reducing hopelessness and suicidal thoughts in adolescents with depressive disorder?

Methodology

The present study employed a quasi-experimental design with a pre-test, post-test, and a two-month follow-up, utilizing a control group. The statistical population comprised all first and second-grade high school students in Kermanshah during the academic year 2023–2024. The research sample was selected using purposive sampling from adolescents diagnosed with Major Depressive Disorder (MDD) who were referred to the counseling and psychological centers across the three educational districts of Kermanshah. The inclusion criteria required participants to meet the diagnostic criteria for MDD, present with suicidal thoughts and tendencies, and provide written consent to participate. In addition, during the clinical interview phase, participants and their parents were asked about any ongoing psychiatric or pharmacological treatments. Among the 320 initial volunteers, 54 individuals reported receiving concurrent medication or psychiatric treatment and were therefore excluded from the study to avoid confounding effects. Only participants who had not received any form of psychotherapy or pharmacological treatment within the past two months were included in the final sample. This ensured that the intervention effects were not influenced by simultaneous treatments, as pharmacotherapy is often a first-line intervention for suicidal ideation. The recruitment process involved reviewing records at the counseling centers, resulting in 320 initial volunteers who expressed interest. Given the quasi-experimental nature of the research, and citing [Delavar \(2016\)](#), the minimum recommended sample size of 30 participants (equally distributed across the experimental and control groups) was considered sufficient for statistical analysis. The sample size for the present study was determined based on calculations performed using the G*Power software (version 3.1). Considering a significance level (α) of 0.05, statistical power of 0.80, and an effect size (f) of 0.25 (medium) for repeated measures ANOVA (within-between interaction), the minimum required sample size was estimated to be 20 individuals per group. Therefore, the total sample size for the present study was set at 40 participants (20 in the experimental group and 20 in the control group). The determination of a medium effect size was based on the recommendation of [Cohen \(2013\)](#) and similar studies conducted in the field of psychological interventions for adolescents with depressive symptoms. Eligible individuals entered the study based on scoring on the first five screening questions of the Beck Scale for Suicidal Ideation (BSSI) (1979) and were randomly assigned to the experimental and control groups. The intervention was delivered by the researcher, a PhD candidate in General Psychology, who had received specialized training in Behavioral Activation (BA). To ensure clinical integrity and treatment fidelity, all sessions were conducted under the direct supervision of a senior clinical psychologist who served as the clinical supervisor. Inclusion criteria comprised scoring above the cut-off for suicidal thoughts/tendencies on the pre-test, being between the ages of 12 and 19 (inclusive), not participating in any other concurrent psychological treatment program, and providing consent to participate. Exclusion criteria included more than two sessions of absence from the program, diagnosis of severe mental disorders, and a history of substance abuse. Participants were selected based on both a clinical interview conducted by a clinical psychologist and the scores obtained from the BSSI questionnaire. It should be noted that all participants completed and signed the informed consent form. In addition, during the clinical interview phase, participants and their parents were asked about any ongoing psychiatric or pharmacological treatments. Among the 320 initial volunteers, 54 individuals reported receiving concurrent medication or psychiatric treatment and were therefore excluded from the study to avoid confounding effects. Only participants who had not received any form of psychotherapy or pharmacological treatment within the past two months were included in the final sample. This criterion was added to the inclusion criteria and ethical considerations to ensure that the intervention effects were not influenced by simultaneous treatments. All participants also committed to abstain from initiating new psychiatric or pharmacological treatments throughout the duration of the study and the two-month follow-up period. As a result, none of the 40 final participants (20 in each group) were receiving concurrent treatment during the intervention. To control for influential confounding factors, such as pre-treatment depression severity, level of social support, and coping strategies, several methodological and statistical measures were taken. First, the random assignment of participants into the experimental and control groups ensured that these individual differences were distributed equally, establishing

baseline equivalence between the groups. Second, preliminary analyses were conducted to confirm the demographic homogeneity of the groups across the three educational districts, ensuring that district-level differences did not influence the outcomes. Third, the Mixed-Design Analysis of Variance (Mixed ANOVA) was employed to statistically account for pre-test scores as a baseline, thereby measuring the interaction effect of time and group while controlling for initial severity. Additionally, to control for the impact of treatment time, both groups were assessed at identical intervals (pre-test, post-test, and a two-month follow-up), and the intervention was delivered through a standardized protocol with fixed session durations to ensure consistency.

Research Instruments

Hopelessness Scale for Children (HSC): The Hopelessness Scale for Children (HSC) was developed by [Kazdin et al. \(1986\)](#) based on Beck's Hopelessness Scale and revised in the same year. The scale consists of 17 true/false items designed to assess hopelessness in children and adolescents aged 8 to 16. Each item is scored as 1 if the response matches the keyed direction and 0 otherwise. Total scores range from 0 to 17, with higher scores indicating greater levels of hopelessness. The scale was originally structured around two main factors: Future Expectations (items 2, 3, 8, 9, 10, 12, 13, 14, 15, 17) and General Happiness about the Future (items 1, 4, 5, 6, 7, 11, 16). [Mayer and Anderson \(1991\)](#) administered the HSC to a sample of 138 children and adolescents aged 7–17, including 100 with major depression and 38 non-depressed participants. Their findings showed that HSC scores significantly predicted suicidal behaviors over a three-year follow-up period. Test-retest reliability was reported as 0.57 over a six-week interval in the depressed group and 0.49 over a ten-week interval in the non-clinical group. In Iran, [Najati et al. \(2015\)](#) translated the HSC into Persian, and the accuracy, readability, and clarity of the translation were verified by a panel of five experts. Exploratory factor analysis in the Iranian population revealed a three-factor structure: inability to identify pathways to goals, lack of agency, and low perceived value of the future. Additionally, a significant negative correlation between total HSC scores and [Snyder et al.'s \(1996\)](#) Children's Hope Scale provided evidence of adequate divergent validity. Internal consistency using the Kuder–Richardson Formula 20 (KR-20) was 0.69. In a later study by [Rezapour Mirsaleh et al. \(2022\)](#) conducted on adolescent girls, KR-20 reliability was reported as 0.89. In the present study, Cronbach's alpha for the HSC was 0.89.

Beck Scale for Suicide Ideation (BSSI): The Beck Scale for Suicide Ideation (BSSI) is a 19-item self-report instrument that includes subscales assessing death wishes, suicidal intent, and actual suicidal desire ([Beck et al., 1979](#)). Each item is rated on a 3-point Likert-type scale ranging from 0 to 2. The scale begins with five screening items; if the respondent provides a non-zero response to item 5 (indicating any suicidal ideation), they are required to complete the remaining 14 items. Otherwise, the administration stops after the first five items. Higher total scores reflect more severe suicidal ideation. [Beck et al. \(1979\)](#) reported a Cronbach's alpha coefficient of 0.96 for the scale. They also reported significant correlations between the BSSI and the Beck Depression Inventory (BDI) of 0.62 and 0.53 among outpatient and inpatient samples, respectively, and correlations with the Beck Hopelessness Scale of 0.75 and 0.64 in the same groups. The BSSI has been translated into Persian, and its concurrent validity with the General Health Questionnaire (GHQ-28) was reported at 0.76. Its internal consistency, assessed via Cronbach's alpha, was 0.95 ([Mirzaei & Shams Alizadeh, 2013](#)). In a study by [Mikaeili & Samadifard \(2019\)](#) conducted on adolescent girls, Cronbach's alpha was 0.84. In the present study, the Cronbach's alpha coefficient for the BSSI was 0.91.

Group Behavioral Activation Therapy

Behavioral Activation (BA) is an empirically supported psychotherapy for depression grounded in behavioral theory ([Dimidjian et al., 2011](#); [Kanter et al., 2010](#); [Jacobson et al., 2001](#)). Numerous studies have demonstrated its effectiveness across diverse populations (varying in age, culture, and ethnicity), delivery formats (in-person, web-based, telehealth), clinical settings (primary care, community programs, long-term care), and intervention intensities (number and duration of sessions) ([Bigham et al., 2022](#); [Orgeta et al., 2017](#); [Dimidjian et al., 2011](#); [Kanter et al., 2010](#)).

In the present study, we implemented a revised, manualized version of BA developed by Lejuez et al. (2011) for adolescents. The intervention was delivered in 10 weekly group sessions, each lasting 90 minutes. The core c Table 1.

The components and session-by-session content of the group behavioral activation protocol ([Lejuez et al., 2011](#)) are summarized in Table 1

Session	Objective	Key Content
1	Introduce group members and initiate BA exercises	(a) Group introduction; (b) Psychoeducation on depression and behavioral withdrawal; (c) Rationale for BA: "What have you learned about loss or

		adversity in your life?” and “Why is session attendance important?”; (d) Introduction to the Daily Activity Review Form (Form 1): rating activities by pleasure and importance; (e) Homework: Complete Form 1 daily.
2	Enhance awareness of life domains, values, and daily activities	(a) Review Form 1; (b) Clarify treatment rationale through homework discussion; (c) Emphasize structure of BA; (d) Administer Life Domains, Values, and Activities Checklist (Form 2); (e) Homework: Continue Form 1; complete Form 2.
3	Prioritize enjoyable and value-consistent activities	(a) Review Form 1; (b) Review and refine Form 2; (c) Complete Activity Selection and Ranking Worksheet (Form 3); (d) Homework: Continue Form 1; revise Forms 2 and 3 as needed.
4	Review homework and plan future activities	(a) Review Form 1; (b) Integrate activity planning into daily review; (c) Homework: Complete Form 1 with planned activities for the coming week.
5	Reinforce activity planning and introduce behavioral contracts	(a) Review Form 1; (b) Introduce Behavioral Contracts (Form 4); (c) Plan next week’s activities; (d) Homework: Continue Form 1; maintain/revise Form 4.
6	Consolidate activity scheduling and contract adherence	(a) Review Form 1; (b) Review Form 4; (c) Plan next week’s activities; (d) Homework: Continue Forms 1 and 4.
7	Revisit life domains and values	(a) Review Form 1; (b) Re-examine Life Domains, Values, and Activities Checklist (Form 2); (c) Homework: Continue Forms 1 and 4.
8	Revisit activity selection and ranking	(a) Review Form 1; (b) Re-examine Activity Selection and Ranking Worksheet (Form 3); (c) Plan next week’s activities; (d) Homework: Continue Forms 1 and 4.
9	Strengthen commitment through behavioral contracts	(a) Review Form 1; (b) Re-examine Behavioral Contracts (Form 4); (c) Plan next week’s activities; (d) Homework: Continue Forms 1 and 4.
10	Generalize skills and prepare for treatment termination	(a) Review Form 1; (b) Plan post-intervention activities; (c) Discuss relapse prevention and termination; (d) Homework: Continue Forms 1 and 4 independently.

This structured, skills-based protocol emphasizes increasing engagement in meaningful and rewarding activities while reducing avoidance—a core mechanism in the behavioral model of depression. The gradual progression from self-monitoring to values clarification, activity scheduling, and behavioral contracting aligns with the developmental needs of adolescents and supports sustained behavioral change.

Data Analysis Method

Descriptive analyses were conducted using frequency, percentage, mean, and standard deviation. To test the research hypotheses, a mixed-design analysis of variance (mixed ANOVA) was employed. The assumptions of the statistical tests were examined as follows: Normality of the distribution of variables was assessed using the Shapiro–Wilk test; Homogeneity of variances was evaluated using Levene’s test of equality of error variances; Homogeneity of variance–covariance matrices was tested using Box’s M test; Sphericity was assessed using Mauchly’s test of sphericity; Multivariate normality and intercorrelations among dependent variables were examined using Bartlett’s test of sphericity. All analyses were performed using SPSS software, version 27.

Results

Demographic Characteristics

Demographic analysis revealed that the mean age of participants was 14.40 ± 1.69 years in the experimental group and 14.33 ± 1.61 years in the control group, with no significant difference between the groups ($p = 0.89$). Regarding gender distribution, the experimental group included 11 boys (55%) and 9 girls (45%), while the control

group consisted of 9 boys (45%) and 11 girls (55%) ($p = 0.52$). In terms of academic level, the majority of the experimental group were in 9th grade ($n = 8$, 40%), followed by 8th grade ($n = 7$, 35%) and 7th grade ($n = 5$, 25%). Similarly, in the control group, 9th grade had the highest frequency ($n = 9$, 45%), followed by 7th grade ($n = 6$, 30%) and 8th grade ($n = 5$, 25%). To address the homogeneity of the participants across the three educational districts, Chi-square analyses and Independent T-tests were conducted. Results indicated that the groups were well-balanced regarding parental education ($p = 0.89$) and family socioeconomic status ($p = 0.76$). Specifically, in the experimental group, 40% of fathers had below-diploma education, 25% had diplomas, and 35% had university degrees. In the control group, 35% were below-diploma, 30% had diplomas, and 35% had university degrees. Economic status followed a similar non-significant pattern, with most families in both groups categorized as having a "middle" income level. Crucially, further analysis confirmed that there were no significant differences in baseline suicidal ideation or hopelessness scores among participants recruited from the three different educational districts ($p > 0.05$). This confirms the demographic and clinical homogeneity of the sample, ensuring that the recruitment district did not act as a confounding variable.

Descriptive Statistics of the Study Variables

Table 2 presents the means and standard deviations of the variables—anhedonia and suicidal ideation—across the three assessment phases (pretest, posttest, and follow-up) for both the experimental and control groups.

Table 2. Mean and Standard Deviation of Participants' Scores on hopelessness and Suicidal Ideation by Group Across Assessment Phases

Variable	Group	Pretest		posttest		follow-up	
		M	SD	M	SD	M	SD
Hopelessness	Behavioral Activation	10.76	2.54	7.55	1.57	7.74	1.61
	Control	10.45	2.48	10.86	1.81	10.55	2.01
Suicidal Ideation	Behavioral Activation	14.24	6.25	9.05	5.10	9.65	4.57
	Control	12.55	5.95	14.35	4.73	14.19	4.79

Note. M = Mean; SD = Standard Deviation.

The data presented in Table 2 indicate that the mean scores for hopelessness and suicidal ideation show changes across the posttest and follow-up phases in both the experimental and control groups. The results reveal that, in the experimental group, posttest and follow-up scores for all variables changed notably compared to pretest scores, whereas no substantial changes were observed in the control group.

Assessment of Parametric Test Assumptions

The descriptive statistics in Table 2 indicate that the mean scores for hopelessness and suicidal ideation showed notable reductions in the experimental group during the posttest and follow-up phases compared to the pretest, while the control group remained relatively stable. Before conducting the Mixed ANOVA, parametric assumptions were evaluated: the Kolmogorov–Smirnov test confirmed the normality of distributions ($p > 0.05$), and Levene's test demonstrated homogeneity of variances across all assessment phases ($p > 0.05$). Additionally, Box's M test confirmed the homogeneity of variance–covariance matrices for both variables ($p > 0.001$). Although Mauchly's test indicated a violation of the sphericity assumption ($p < 0.05$), this was addressed by applying the Greenhouse–Geisser correction to adjust the degrees of freedom for within-subject effects.

To examine the research hypothesis, the results of the multivariate test (Wilks' Lambda) are first considered. The results of this test are presented in Table 3.

Table 3. Multivariate Test Results for the Effectiveness of Behavioral Activation Therapy on Hopelessness and Suicidal Ideation

Variable	Effect	Test Statistic	Value	F	Hypothesis df	Error df	p	Effect Size (η^2)
Hopelessness	Time	Wilks' Lambda	0.80	4.37	2	37	0.020	0.19
	Group	Wilks' Lambda	0.70	7.84	2	37	0.001	0.29
	Time × Group Interaction	Wilks' Lambda	0.84	3.29	2	37	0.048	0.15
Suicidal Ideation	Time	Wilks' Lambda	0.84	3.29	2	37	0.048	0.15

Group Time Interaction	×	Wilks' Lambda	0.56	14.19	2	37	0.001	0.43
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Note. df = degrees of freedom; η^2 = partial eta squared (effect size).

According to the results of Table 3, the multivariate tests indicated a statistically significant multivariate effect for time ($p < 0.05$) and for the group $\times$ time interaction ($p < 0.01$) for hopelessness. These findings suggest that Behavioral Activation Therapy led to a meaningful reduction in hopelessness among adolescents diagnosed with depressive disorder over the course of the study. Similarly, as shown in Table 3, the multivariate tests revealed a significant effect for both time ($p < 0.05$) and the group $\times$ time interaction ($p < 0.01$) regarding suicidal ideation. This indicates that the intervention was significantly effective in decreasing suicidal ideation in the participants, with the experimental group showing a distinct trajectory of improvement compared to the control group.

Table 4 presents the results of the group $\times$ time interaction effects for Hopelessness and suicidal ideation.

Source of Variation	Variable	Sum of Squares	df	Mean Square	F	p	p	Effect Size (η^2)
Hopelessness	Time (Factor 1)	54.20		1.22	44.13	7.97	0.004	0.17
	Within-Subjects Effects							
	Time $\times$ Group Interaction	76.06		1.22	61.94	11.18	0.001	0.22
	Error	285.40		46.66	5.53			
	Between-Subjects Effects	112.13		1	112.13	19.68	0.001	0.34
Suicidal Ideation	Time (Factor 1)	855.26		1.38	617.09	41.31	0.001	0.12
	Within-Subjects Effects							
	Time $\times$ Group Interaction	619.40		1.38	446.91	29.92	0.001	0.37
	Error	786.66		52.66	14.94			
	Between-Subjects Effects	316.87		1	316.87	3.65	0.064	0.08

Note. df = degrees of freedom (values reflect Greenhouse–Geisser correction due to violation of sphericity). Partial η^2 = partial eta squared (effect size).

According to the results in Table 4, the main effect of time was statistically significant ($p < 0.01$) for hopelessness, indicating that the estimated marginal means of hopelessness scores changed significantly across the assessment phases for the entire sample. Moreover, the interaction between time and group membership was significant ($p < 0.01$), suggesting that the pattern of change over time differed meaningfully between the experimental and control groups. However, the between-subjects effect for hopelessness was not significant ($p > 0.01$), indicating that the two research groups did not differ significantly in their overall levels of hopelessness when averaged across all time points. Similarly, as shown in Table 4, the main effect of time was significant ($p < 0.05$) for suicidal ideation, reflecting a significant change in scores from pretest to posttest and follow-up across all participants. The time $\times$ group interaction was also significant ($p < 0.01$), demonstrating that the trajectory of change in suicidal ideation differed significantly between the experimental and control groups over time. Nevertheless, the between-subjects effect for suicidal ideation was not significant ($p > 0.05$), indicating no overall group difference in suicidal ideation when averaged across the assessment phases.

To further examine changes in hopelessness and suicidal ideation across the three assessment phases (pretest, posttest, and follow-up), pairwise comparisons were conducted using the LSD (Least Significant Difference) post hoc test. The results are reported in Table 6.

Table 6. Pairwise Comparisons of Mean Scores for Hopelessness and Suicidal Ideation Across Three Time Points

Variable	Time A	Time B	Mean Difference	SE	p
Hopelessness	Pretest	Posttest	-1.22*	0.50	0.020
		Follow-up	-1.07*	0.49	0.045

	Posttest	Follow-up	-0.15	0.19	0.451
suicidal ideation	Pretest	Posttest	-1.70*	0.66	0.014
		Follow-up	-1.47*	0.62	0.024
	Posttest	Follow-up	-0.22	0.38	0.557

Note. Negative mean differences indicate a decrease from Time A to Time B. SE = Standard Error of the Difference; $p < 0.05$ considered statistically significant.

According to the findings reported in Table 6, there is a statistically significant difference between the pretest and posttest means, as well as between the pretest and follow-up means ($p < 0.05$), for both hopelessness and suicidal ideation. However, the difference between the posttest and follow-up means was not statistically significant ($p > 0.05$) for these variables. This indicates that the therapeutic gains achieved through the intervention were effectively maintained over time, as no significant change occurred during the follow-up period.

Discussion and Conclusion

The present study was conducted to examine the effectiveness of Behavioral Activation training and its impact on reducing hopelessness and suicidal ideation among adolescents diagnosed with depressive disorder in Kermanshah. The findings indicated that the Behavioral Activation intervention was significantly more effective than the control condition in reducing both variables under investigation.

The first major finding of this study indicated that behavioral activation therapy had a significant effect on reducing hopelessness in adolescents with depression. This finding aligns with the results of previous studies (e.g., [Alirahmi et al., 2024](#); [Webb et al., 2023](#)) and meta-analyses ([Huang et al., 2024](#); [Bigham Lalabadi et al., 2022](#)). Furthermore, it is supported by research emphasizing the effectiveness of this treatment on the cognitive components of depression ([Taghavi et al., 2022](#); [Ghodrati Isfahani & Moradi, 2020](#); [Dimidjian et al., 2011](#); [Kanter & Puspitasari, 2012](#)). However, unlike much of the previous research that has primarily examined adult or university populations, the present study specifically focused on adolescents diagnosed with MDD a population in which hopelessness is often intertwined with developmental challenges and identity confusion. As [Dimidjian et al. \(2011\)](#) and [Alirahmi et al. \(2024\)](#) state, depression and hopelessness result from reduced exposure to positive environmental reinforcers and the development of avoidance behaviors. Hopelessness in adolescents often stems from a cognitive deadlock and a sense of powerlessness to change their situation. Behavioral activation breaks the avoidance-isolation cycle and replaces it with goal-directed activities, thereby providing opportunities to re-experience rewards such as pleasure and mastery. According to [Zhu et al. \(2023\)](#), this behavioral engagement activates brain reward systems, directly counteracting negative mood states. When adolescents realize through action that they are capable of performing activities and altering their environment (i.e., increasing self-efficacy), negative and hopeless beliefs about the future (such as "nothing will change") are challenged and modified. Therefore, in contrast to prior evidence that focused mainly on symptom reduction, the present study reveals how BA specifically mitigates hopelessness—a core cognitive vulnerability for depression—by reinforcing self-efficacy and agency in real-life settings. This underlines BA's broader cognitive-behavioral influence beyond its behavioral scope.

The second major finding of the present study indicated that behavioral activation intervention had a significant effect on reducing suicidal ideation in adolescents with depression. This finding is consistent with recent evidence, including the study by [Kaliush et al. \(2025\)](#), which confirmed the efficacy of behavioral activation in reducing suicidality in clinical populations. It also aligns with the results of [Hemanny et al. \(2022\)](#), [Bedayat and Askary \(2020\)](#), [Jafari et al. \(2015\)](#), and [Hopko et al. \(2013\)](#). Nevertheless, a distinct contribution of this research is its focus on suicidal ideation as a primary outcome in Iranian adolescents. While earlier BA literature often overlooked this high-risk group or focused on general depressive symptoms, our findings demonstrate BA's direct impact on suicidality within a sociocultural context where stigma often limits access to psychological resources. In explaining this finding, it can be argued that depression is often characterized by a reduction in activity levels, isolation, and withdrawal from previously pleasurable activities—a state that fosters negative rumination, hopelessness, and ultimately, suicidal thoughts ([Bedayat & Askary, 2020](#)). Behavioral activation targets this maladaptive cycle by encouraging adolescents to re-engage in goal-directed and pleasurable activities, thereby improving mood and alleviating depressive symptoms. Although behavioral activation does not directly target cognitive content, it modifies the individual's cognitive style indirectly through behavioral change. As [Kanter and Puspitasari \(2012\)](#) elucidate, by increasing participation in meaningful activities and facilitating the experience of "small successes," this therapy enhances the individual's sense of control and self-efficacy. This behavioral mastery counters the feelings of helplessness that often underlie suicidal ideation. Furthermore, by encouraging social engagement, behavioral activation increases access to social support. This support fosters feelings of worthiness, acceptance, and being understood, all of which play a crucial protective role against suicidal thoughts.

Ultimately, as a learning-based approach, behavioral activation helps adolescents break the self-reinforcing cycle of depression and move toward a more active and satisfying life. These positive changes in behavioral-emotional functioning create a self-sustaining feedback loop: increased activity alleviates anhedonia, which in turn motivates further engagement in rewarding behaviors, thereby significantly reducing the urge for self-harm. Hence, this study not only reaffirms BA's therapeutic effect but also extends its theoretical implications by showing how social and behavioral activation mechanisms can protect against suicidality through the mediation of positive reinforcement and social support—areas rarely highlighted in previous BA frameworks.

In conclusion, the findings of the present study demonstrate that Behavioral Activation, by targeting the modification of maladaptive behavioral patterns and enhancing positive reinforcement, not only alleviates the core symptoms of depression but also exerts a profound therapeutic impact on high-risk constructs such as hopelessness and suicidal ideation. Unlike many previous studies that focused solely on clinical or adult populations, this research provides novel evidence supporting the adaptability and success of BA among Iranian adolescents—a demographic facing unique psychosocial stressors. These results underscore the critical importance of implementing this short-term, cost-effective intervention within both clinical and educational settings. Despite its significant findings regarding the efficacy of Behavioral Activation (BA) on hopelessness and suicidal ideation in depressed adolescents, this study faces several limitations. First, the generalizability of the results is limited as the sample was drawn exclusively from counseling centers in Kermanshah. Second, the relatively short intervention and follow-up periods precluded the assessment of long-term effects. Third, reliance on self-report measures may have introduced social desirability or recall biases. Finally, environmental confounding variables, such as academic pressure, family status, and socioeconomic conditions, were not fully controlled. Based on these limitations, it is recommended that future research employ larger, geographically diverse samples and longitudinal designs. Additionally, incorporating neuroimaging techniques and biological markers related to the reward system would facilitate a deeper understanding of the biological mechanisms underlying this intervention. Investigating mediating variables, such as anxiety, self-efficacy, and social support, is also advised. Ultimately, given the feasibility and simplicity of BA, integrating this approach into school-based prevention programs and community counseling centers is recommended as an effective strategy to mitigate the prevalence of depression and suicidal ideation among vulnerable adolescents.

Ethical Considerations

To ensure ethical compliance, the managers of the three counseling centers, who had access to the students' files, initially contacted the students' parents or legal guardians to provide a comprehensive explanation regarding the study's objectives and the content of the sessions. Upon parental agreement, written informed consent was obtained, and the students were included in the study sample. Furthermore, during the initial briefing session, the study's purpose and session content were explained to the students, and they also completed an informed consent form upon agreement. This study was derived from a doctoral dissertation in psychology at the University of Mohaghegh Ardabili (Ethics Code:

<https://ethics.research.ac.ir/EthicsProposalView.php?&code=IR.UMA.REC.1402.024>)

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Conflict of Interest

The authors of this article declare that they have no conflicts of interest.

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