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Original Article

Impact of Psychosocial Empowerment Training on Curbing High-risk behaviors in At-risk male adolescents

Abolghasem Rahmatzadeh[1], **Nader Monirpour**[1]*, **Majid Zargham Hajebi**[1]

1. Department of Psychology, Qo.C., Islamic Azad University, Qom, Iran

***Corresponding author:**
Nader Monirpour, Department of Psychology, Qo.C., Islamic Azad University, Qom, Iran.
Tel: +9802532804040
Email: monirpoor@qom-iau.ac.ir

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Abstract

Background and Objective: Adolescence represents a critical developmental period characterized by a heightened susceptibility to high-risk behaviors, which can significantly impede healthy psychosocial progression and future well-being. The present study aimed to assess the effectiveness of psychosocial empowerment training, specifically when delivered by adults, in the mitigation of various high-risk behaviors among at-risk male adolescents.

Materials and Methods: This research employed a quasi-experimental two-group pretest-posttest design with a follow-up. The study was conducted during the 2022-2023 academic year, drawing its statistical population from male public secondary school students located in high-risk areas of Tehran, Iran. A purposive sample of 39 at-risk male adolescents was identified based on predefined criteria and subsequently randomly assigned to either an experimental group (n=19), which received adult-led psychosocial empowerment training, or a control group (n=20), which remained on a wait-list. The experimental group participated in eight 90-minute sessions of the intervention. Data were collected using the High-Risk Behaviors Questionnaire. Statistical analysis involved descriptive measures (means, standard deviations) and inferential repeated measures ANOVA, supplemented by Bonferroni post-hoc tests.

Results: The findings indicated that the adult-led psychosocial empowerment training significantly reduced high-risk behaviors in the experimental group compared to the control group across the assessment phases ($P<0.01$).

Conclusions: This study underscores the substantial benefits of adult-led psychosocial empowerment training for at-risk male adolescents, affirming its potential to mitigate a range of high-risk behaviors and promote healthier developmental trajectories.

Keywords: Adolescent, Empowerment, Health promotion, Psychosocial intervention, Risk-taking behavior

Background

Adolescence signifies a uniquely transformative yet inherently vulnerable developmental stage in human life, characterized by profound and rapid physical, cognitive, and socio-emotional maturation [1]. During this pivotal juncture, adolescents routinely encounter a multitude of complex challenges, encompassing evolving peer dynamics, pervasive academic pressures, and the intricate process of identity formation [2]. For a specific segment of this population, notably at-risk male adolescents, these normative developmental demands are exacerbated by exposure to adverse environmental factors. At-risk male adolescents, typically aged 12-18 years, are defined here as individuals facing heightened vulnerability to adverse outcomes due to such factors as socio-economic disadvantage, family dysfunction, or residence in high-risk urban locales, often coupled with a history of engaging in high-risk behaviors. These challenging circumstances can markedly heighten their predisposition to engage in detrimental behaviors, thereby imperiling their immediate well-being and long-term developmental trajectories [3]. Consequently, comprehending and addressing the distinct stressors and vulnerabilities inherent to this demographic is critically important for fostering healthier developmental outcomes.

A predominant concern during the adolescent period involves the emergence and persistence of high-risk behaviors. These encompass a wide range of behaviors that fundamentally threaten one's personal health, safety, and overall social functioning [4, 5]. Such behaviors, including various forms of substance abuse (e.g., cigarette, hookah, alcohol consumption, and illicit psychoactive substance use), aggressive conduct, engagement in risky sexual practices, expressions of suicidal ideation and actual attempts, and instances of running away from home, are intricately linked to a myriad of

adverse consequences. These include, but are not limited to, academic underachievement, legal complications, exacerbation of mental health issues, heightened susceptibility to chronic diseases, and even premature mortality [6, 7]. The genesis and subsequent escalation of these behaviors are frequently multifactorial, influenced by a complex interplay of individual psychological vulnerabilities, peer group dynamics, familial contexts, and broader community characteristics [8]. Therefore, the effective mitigation of these behaviors necessitates the implementation of targeted interventions that comprehensively address their underlying psychological and social determinants.

In direct response to pervasive challenges presented by high-risk behaviors, psychosocial empowerment training has emerged as a promising and efficacious therapeutic intervention [9]. This approach, firmly anchored in established theories of self-efficacy, social learning, and resilience, is specifically designed to equip individuals with the requisite internal resources and adaptive competencies essential for navigating adversity, making judiciously informed decisions, and exerting greater personal control over their life circumstances [10, 11]. By assiduously cultivating self-awareness, refining emotional regulation capabilities, sharpening critical thinking processes, enhancing problem-solving acumen, and bolstering effective communication skills, psychosocial empowerment genuinely empowers adolescents [12]. It enables them to competently identify and constructively challenge negative influences, articulate their needs with clarity, and consistently adopt healthier coping strategies [13]. This holistic framework holds particular salience for young individuals, as it intrinsically cultivates a sense of agency and proactively promotes adaptive responses to multifaceted and often demanding realities of adolescence [14].

The demonstrated effectiveness of psychosocial interventions in the mitigation of various high-risk behaviors among adolescents has been consistently substantiated across a diverse range of settings and populations [15]. Research consistently emphasizes the critical importance of providing nurturing and supportive environments where young individuals can safely practice newly acquired skills and progressively build self-confidence [16]. While various modalities for delivering these interventions exist, the overarching and consistent objective remains to fortify internal protective factors and bolster overall social competence. Previous scholarly investigations have thoroughly explored different formats for implementing such interventions, including those led by adults [17]. These studies have consistently underscored the critical importance of maintaining program fidelity and ensuring robust facilitator expertise as key determinants in achieving desired therapeutic outcomes [18]. Continued inquiry into the specific mechanisms through which these programs exert their influence remains a pivotal area of research to further optimize their design and implementation.

Despite the progressively expanding body of empirical evidence, a critical need persists for context-specific research that rigorously evaluates effective interventions tailored for at-risk male adolescents. Specifically, there is a discernible paucity of studies concentrating on interventions delivered by adults within the unique socio-cultural landscape of Tehran, Iran. Such research is undeniably vital for the development of culturally appropriate, contextually relevant, and ultimately sustainable programs that are specifically designed to address the unique needs of this particular population.

Objectives

In light of the aforementioned issues, the present study sought to rigorously evaluate the effectiveness of adult-led psychosocial empowerment training in significantly reducing high-risk behaviors among at-risk male adolescents.

Materials and Methods

This study adopted a quasi-experimental design featuring a two-group structure, selected due to practical constraints in randomizing participants at the school level, which precluded a true experimental design. The research incorporated pre-test, post-test, and follow-up assessments conducted during the 2022-2023 academic year. The statistical population comprised male public secondary school students attending institutions situated in high-risk areas of Tehran, Iran. A purposive sampling method was employed to select 39 participants who met predefined inclusion criteria, such as a history of engaging in high-risk behaviors and willingness to participate. On the other hand, the exclusion criteria entailed diagnosed psychiatric disorders or concurrent participation in other intervention programs. These participants were then randomly assigned to two distinct groups: an experimental group comprising 19 individuals and a control group consisting of 20 individuals. Ethical approval was secured from the Ethics Committee of Islamic Azad University, Qom Branch, Iran

(IR.IAU.QOM.REC.1403.149), and informed consent was obtained from all participants and their legal guardians.

Study Tool

Data pertinent to high-risk behaviors were collected using the High-Risk Behaviors Questionnaire (HRBQ), adapted from the Centers for Disease Control and Prevention Youth Risk Behavior Surveillance System. This self-report instrument is designed to assess the prevalence and frequency of various risk behaviors among adolescents. It typically covers multiple domains, including substance use (e.g., tobacco, alcohol, illicit drugs), aggressive behaviors, suicidal ideation and attempts, running away, and risky sexual activities. The questionnaire employs a Likert-type scale or frequency-based responses to quantify engagement in these behaviors [19]. Its robust psychometric properties, including established reliability and validity in adolescent populations, render it a suitable tool for this investigation [20].

Intervention Program

The experimental group participated in an adult-led psychosocial empowerment training program, delivered over eight 90-minute weekly sessions. This structured intervention aimed to enhance participants' life skills, coping mechanisms, and decision-making abilities to reduce engagement in high-risk behaviors (Table 1). The control group, on the contrary, was placed on a wait-list and did not receive any active intervention during the study period. The curriculum was designed to be interactive and experiential, facilitating discussions, role-playing, and skill-building exercises.

Data Analysis

Data underwent descriptive and inferential statistical analyses using SPSS software (version 25.0). Means and standard deviations summarize scores. Repeated measures ANOVA assessed the effects of adult-led psychosocial empowerment training on high-risk behaviors across three phases. Assumptions (normality, sphericity, and homogeneity) were assessed. Bonferroni post-hoc tests identified significant pairwise differences.

Table 1. Adult-led psychosocial empowerment training program overview

Session	Topic	Key activities
1	Introduction to empowerment and risk	Program orientation, understanding adolescent development, and identifying risks
2	Self-Awareness and emotional regulation	Exploring emotions, recognizing triggers, and healthy emotional expression
3	Communication skills	Active listening, assertive communication, and expressing boundaries
4	Critical thinking and decision-making	Analyzing influences, evaluating consequences, and problem-solving steps
5	Coping strategies	Stress management techniques, healthy coping with challenges
6	Building resilience	Personal strengths, supportive networks, and overcoming adversity
7	Goal setting and future planning	Identifying aspirations, setting realistic goals, and creating a pathway to success
8	Sustaining change and relapse prevention	Reinforcing skills, maintaining positive behaviors, and seeking ongoing support

Results

The study enrolled 39 participants, who were then allocated into two distinct groups: an experimental group (n=19) and a control group (n=20). The mean age scores of participants in experimental and control groups were obtained at 14.32±0.82 and 14.10±0.97 years, respectively. Regarding educational background, the experimental group included 2 seventh-graders, 8 eighth-graders, and 9 ninth-graders. In the control group, 1 participant was in the seventh grade, 8 in the eighth grade, and 11 in the ninth grade. Table 2 illustrates descriptive statistics, including means and standard deviations, for high-risk behavior subscales and total scores across the three assessment phases. A notable trend emerged in the experimental group, where mean scores for both high-risk behavior subscales and the total score consistently decreased during the post-test and follow-up phases. On the contrary, the control group displayed no comparable changes or significant reductions across these periods.

Table 2. Means and standard deviations of high-risk behavior subscales and total score across three assessment phases

Variable	Group	Pre-test	Post-test	Follow-up
		Mean ± SD	Mean ± SD	Mean ± SD
Aggressive behaviors	Experimental	17.94±2.80	13.78±2.15	15.11±2.35
	Control	19.35±2.98	18.41±2.58	18.90±2.67
Running away	Experimental	14.68±3.50	10.57 ±2.06	11.10±2.11
	Control	13.40±2.64	13.80±1.91	13.85±2.08
Relationships with the opposite sex	Experimental	12.89±2.87	9.68±1.45	10.12±1.96
	Control	12.10±2.38	12.55±1.76	12.68±1.93
Suicidal thoughts and attempts	Experimental	4.32 ±1.72	2.30±1.18	2.37±1.34
	Control	4.40±1.64	4.45±1.82	4.03±1.65

Cigarette and hookah use	Experimental	23.21±3.82	18.52±2.63	18.58±4.75
	Control	22.65±4.31	23.35±2.74	23.10±2.78
Alcohol consumption	Experimental	16.11 ±2.42	11.74±1.79	12.11±2.45
	Control	15.09±2.34	15.80±2.02	15.65±2.39
Psychoactive substance use	Experimental	16.58±2.34	11.68±2.64	12.63±2.43
	Control	18.20±3.12	16.85±2.56	16.78±2.67
Total score	Experimental	105.74±9.82	78.31±7.68	82.06±8.93
	Control	105.20±10.68	105.15±8.39	105.00±7.52

Prior to inferential analyses, statistical assumptions were rigorously assessed. Shapiro-Wilk tests confirmed normality for all subscales and total scores across groups and phases (all non-significant). Levene's test similarly upheld homogeneity of error variances, and Box's M statistic supported homogeneity of covariance matrices. Nonetheless, Mauchly's test indicated a sphericity violation for the 'running away' component (P=0.007), necessitating a Greenhouse-Geisser correction for its degrees of freedom. With assumptions validated, data underwent repeated measures ANOVA. Table 3 details the multivariate analysis examining the effect of adult-led psychosocial empowerment training on high-risk behavior subscales and total score.

Table 3. Results of repeated measures ANOVA for the effect of psychosocial empowerment training on high-risk behaviors

Variable	Source	MS	F	P	η^2
Aggressive behaviors	Group	309.25	33.28	0.001	0.47
	Time	52.80	8.65	0.006	0.19
	Group × Time	52.38	4.76	0.011	0.11
Running away	Group	71.18	12.75	0.001	0.26
	Time	47.70	8.45	0.006	0.19
	Group × Time	119.38	9.72	0.001	0.21
Relationships with the opposite sex	Group	69.20	15.86	0.001	0.30
	Time	24.43	5.41	0.026	0.13
	Group × Time	80.08	8.94	0.001	0.20
Suicidal thoughts & attempts	Group	48.14	23.18	0.001	0.39
	Time	26.84	8.22	0.007	0.18
	Group × Time	22.25	4.13	0.022	0.10
Cigarette and hookah use	Group	250.61	22.32	0.001	0.38
	Time	85.19	7.23	0.011	0.16
	Group × Time	178.32	8.70	0.001	0.19
Alcohol consumption	Group	141.59	29.97	0.001	0.45
	Time	57.99	11.69	0.002	0.24
	Group × Time	151.55	14.52	0.001	0.28
Psychoactive substance use	Group	393.37	48.43	0.001	0.57
	Time	136.71	15.34	0.001	0.29
	Group × Time	65.64	4.57	0.013	0.11
Total score	Group	7893.06	89.52	0.001	0.71
	Time	2791.41	38.94	0.001	0.51
	Group × Time	4280.23	28.65	0.001	0.44

As presented in Table 3, apart from significant main effects for both group and time, the interaction effect between group and time was statistically significant for several subscales of high-risk behaviors and the total score. Specifically, significant interaction effects (P<0.05) were observed for: aggressive behaviors (F=4.76, P=0.011, η2=0.11), running away (F=9.72, P=0.001, η2=0.21), relationships with opposite sex (F=8.94,P=0.001,η2=0.195), suicidal thoughts and attempts (F=22.32, P=0.001, η2=0.38), cigarette and hookah use (F=29.97, P=0.001, η2=0.45), alcohol consumption (F=14.52, P=0.001, η2=0.28), psychoactive substance use (F=4.57, P=0.013, η2=0.11), and the total score of high-risk behaviors (F=28.65, P=0.001, η2=0.44). These findings collectively indicate that the implementation of the adult-led psychosocial empowerment training significantly impacted the scores of high-risk behavior subscales and the total score.

Table 4 displays the Bonferroni post-hoc test results, detailing pairwise comparisons for

group and time effects on high-risk behaviors. Significant mean differences were observed in high-risk behavior subscales and total scores when comparing pre-test to post-test, and pre-test to follow-up phases ($P<0.05$). Critically, no significant mean differences were observed between post-test and follow-up phases, suggesting that the reductions achieved were largely maintained. This pattern signifies that the adult-led psychosocial empowerment training effectively led to a sustained reduction in high-risk behaviors within the experimental group. These findings are further corroborated by the trends in mean scores presented in Table 2, affirming that the positive changes resulting from the intervention persisted beyond its completion. In conclusion, adult-led psychosocial empowerment training demonstrates efficacy in mitigating high-risk behaviors among at-risk male adolescents.

Table 4. Bonferroni post-hoc test results for pairwise comparisons of time effects on high-risk behaviors

Variable	Time Points	Mean Difference	SE	P
Aggressive behaviors	Pre-test - Post-test	2.58	0.57	0.001
	Pre-test - Follow-up	1.65	0.56	0.017
	Post-test - Follow-up	0.93	0.47	0.167
Running away	Pre-test - Post-test	1.85	0.66	0.023
	Pre-test - Follow-up	1.56	0.54	0.018
	Post-test - Follow-up	0.29	0.47	0.999
Relationships with the opposite sex	Pre-test - Post-test	1.38	0.41	0.015
	Pre-test - Follow-up	1.12	0.38	0.039
	Post-test - Follow-up	0.26	0.45	0.999
Suicidal thoughts and attempts	Pre-test - Post-test	0.98	0.36	0.029
	Pre-test - Follow-up	1.17	0.41	0.020
	Post-test - Follow-up	0.20	0.35	0.999
Cigarette and hookah use	Pre-test - Post-test	1.99	0.61	0.007
	Pre-test - Follow-up	2.09	0.78	0.032
	Post-test - Follow-up	0.10	0.76	0.999
Alcohol consumption	Pre-test - Post-test	1.85	0.52	0.004
	Pre-test - Follow-up	1.73	0.50	0.005
	Post-test - Follow-up	0.12	0.53	0.999
Psychoactive substance use	Pre-test - Post-test	3.12	0.60	0.001
	Pre-test - Follow-up	2.65	0.68	0.001
	Post-test - Follow-up	0.47	0.53	0.999
Total score	Pre-test - Post-test	13.74	2.10	0.001
	Pre-test - Follow-up	11.97	1.92	0.001
	Post-test - Follow-up	1.77	1.85	0.999

Discussion

The current study aimed to evaluate the effectiveness of adult-led psychosocial empowerment training in mitigating high-risk behaviors among at-risk male adolescents. The significant findings, particularly the notable reductions in both high-risk behavior subscales and total scores within the experimental group, which were sustained at follow-up, strongly affirm the efficacy of this intervention. The statistically significant group-by-time interaction effects observed across various high-risk behaviors, along with the overall total score, underscore that the positive changes were directly attributable to the psychosocial empowerment program delivered by adults. These results highlight the substantial potential of the program as a targeted intervention for vulnerable adolescent populations.

The observed effectiveness aligns robustly with existing literature that champions the application of psychosocial interventions in fostering positive behavioral change among youth [15, 16]. The core principles of psychosocial empowerment, which emphasize cultivating self-efficacy, improving coping mechanisms, and enhancing decision-making skills, appear to be instrumental in equipping adolescents to navigate challenging environments and resist engaging in detrimental activities [13]. By providing a structured, supportive environment under adult guidance, participants probably enhanced their self-awareness and bolstered their capacity for emotional regulation and critical thinking. This framework enables adolescents to internalize

healthier response patterns, rather than merely avoiding risky situations, contributing to the sustained impact observed in the follow-up phase.

The adult-led modality, a key focus of this study, appears particularly well-suited for addressing complex high-risk behaviors in this demographic [21]. Adults often bring a level of structured guidance, consistent reinforcement, and a wealth of life experience that can be invaluable for adolescents grappling with significant challenges [22]. The impact of the program across diverse high-risk domains—including aggressive behaviors, various forms of substance use, and risky social interactions—suggests a broad-spectrum therapeutic effect [23]. This comprehensive reduction points to the potential of intervention to address underlying psychological vulnerabilities and skill deficits that contribute to a multitude of risk-taking behaviors, rather than just targeting isolated issues [24].

The demonstrated efficacy of adult-led psychosocial empowerment training holds considerable practical implications for both clinical practice and public health policy. Educational institutions and community organizations working with at-risk male adolescents could integrate such structured programs into their curricula or outreach initiatives, providing a proactive approach to prevention and intervention [25, 26]. Furthermore, these findings support the allocation of resources towards training skilled adult facilitators capable of delivering these complex interventions with fidelity. From a policy perspective, acknowledging the effectiveness of adult-led programs can inform national and regional strategies aimed at adolescent well-being, particularly in contexts similar to Tehran, where specific local research is crucial.

Despite these compelling findings, this research has its limitations. The quasi-experimental design, while practical, precludes definitive causal inferences as randomization at the population level was not feasible. The relatively modest sample size may limit the generalizability of the findings to broader populations of at-risk male adolescents. Furthermore, reliance on self-report measures for high-risk behaviors, while standard, carries the inherent risk of social desirability bias. On a final note, the follow-up period, though valuable, was limited, and longer-term assessments would provide more robust evidence of sustained effects.

Future research endeavors should aim to address these limitations. Longitudinal studies with larger and more diverse samples are needed to confirm the long-term effectiveness of adult-led psychosocial empowerment training and enhance generalizability. Investigations into potential moderator and mediator variables (e.g., family support and individual resilience levels) could elucidate the specific pathways through which the intervention exerts its effects. Comparative studies with other intervention modalities, or combinations thereof, would also be beneficial. Finally, qualitative research could provide deeper insights into the lived experiences of participants and the mechanisms of change from their perspectives.

Conclusions

This study provides robust empirical evidence affirming the efficacy of adult-led psychosocial empowerment training in mitigating high-risk behaviors among at-risk male adolescents. Significant reductions were observed across various behavioral domains and in the overall composite score, with effects sustained at follow-up. These findings underscore the potential of the intervention to induce positive and lasting behavioral changes. They highlight the critical role of structured, adult-facilitated programs in equipping vulnerable youth with essential life skills, thereby promoting healthier developmental trajectories. This approach offers a promising pathway for effective intervention strategies.

Ethical Considerations

The study was conducted in accordance with ethical guidelines, and approval was granted by the Ethics Committee of Islamic Azad University, Qom Branch, Iran, under the ethics code IR.IAU.QOM.REC.1403.149. Informed consent was obtained from all participants and their legal guardians prior to enrollment.

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Authors' contributions

Abolghasem Rahmatzadeh contributed to the study design, data collection, and manuscript preparation. Nader Monirpour, as the corresponding author, conceptualized the study, supervised the research process, and performed critical revisions of the manuscript. Majid Zargham Hajebi was involved in data analysis, interpretation of results, and drafting the discussion section. All authors reviewed and approved the final manuscript.

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Conflicts of Interest
The authors declare no conflict of interest related to this study.

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