

The Effectiveness of Choice Theory Training on Adolescent Crisis Management and Academic Motivation

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ABSTRACT

The present study aimed to investigate the effectiveness of choice theory training on adolescent crisis management and academic motivation. This applied study employed a quasi-experimental pretest–posttest design with a control group. The statistical population consisted of female students in Grades 7 and 8 of lower secondary schools in Zahedan during the 2024–2025 academic year. A total of 60 students were selected using multistage cluster sampling and were subsequently randomly assigned to two experimental groups and one control group. The research instruments included the Adolescent Crisis Management Questionnaire (Sarafrazi, 2012), the Academic Motivation Questionnaire (Harter, 1980, 1981), and the Choice Theory Training Package (Ghari Zadeh et al., 2024). The content validity of the instruments was established, and their reliability was assessed using Cronbach's alpha coefficients, which were .71 for the Adolescent Crisis Management Questionnaire and .89 for the Academic Motivation Questionnaire. Repeated-measures analysis of variance was used to analyze the data. The results indicated significant improvements from pretest to posttest in crisis management and its components, as well as in academic motivation and its components, among participants receiving choice theory training. The effects were also maintained at the follow-up assessment. In both domains, the effect on extrinsic motivation, particularly at follow-up, was greater than that observed for the other components. Overall, the intervention demonstrated stronger effectiveness at posttest; however, this relative advantage was not maintained at follow-up.

Keywords: choice theory training, adolescent crisis management, academic motivation

1. Introduction

Adolescence is a developmental period characterized by rapid and interconnected biological, cognitive, emotional, social, and educational changes that can increase vulnerability to psychological disequilibrium and crisis. During this period, adolescents are required to adapt simultaneously to changes in identity, autonomy, interpersonal relationships, academic expectations, family dynamics, and future-oriented decision-making. These transitions can create substantial psychological pressure when the adolescent's coping resources are insufficient to meet environmental and developmental demands. Identity-related uncertainty is particularly salient during adolescence because young people are gradually attempting to develop a coherent understanding of themselves, their values, their social roles, and their future direction. Motivational and supportive strategies can facilitate the resolution of identity-related tensions and strengthen adolescents' ability to respond adaptively to developmental challenges (Ghorbani & Golmohammadi, 2025). From a clinical and developmental perspective, crises experienced during adolescence may involve emotional dysregulation, impulsive reactions, interpersonal conflict, academic decline, withdrawal, anxiety, and difficulty making appropriate decisions under pressure. Consequently, crisis management in adolescence should not be understood merely as an emergency response to acute events; rather, it encompasses a broader set of cognitive, emotional, behavioral, and interpersonal capacities that enable adolescents to anticipate potential difficulties, respond effectively during stressful circumstances, and recover adaptively after challenging events. The importance of appropriately assessing and initially managing crises among adolescents has been emphasized because the developmental characteristics of this age group can influence both crisis presentation and the effectiveness of intervention (Leverett et al., 2020). Therefore, educational and psychological interventions that strengthen adolescents' self-awareness, decision-making, responsibility, emotional control, and interpersonal functioning may play an important role in improving their capacity to manage crisis situations.

Crisis management has traditionally been discussed within organizational and institutional contexts; however, its underlying principles are also relevant to educational and developmental settings. Crisis management involves preparedness before a crisis, adaptive action during the crisis, and restoration and learning after the crisis. In schools,

effective crisis management includes the capacity to identify threats, prepare appropriate responses, preserve psychological and educational functioning, and facilitate recovery after disruptive events. Research in educational settings has demonstrated that crisis management is a multidimensional process requiring coordination among individual, interpersonal, organizational, and environmental factors. Studies addressing crisis management in schools have highlighted the importance of preparedness, leadership, communication, psychological readiness, and systematic planning (Mirhamzeh, 2022). Similarly, research examining educational crisis management during the coronavirus pandemic identified a complex network of structural, managerial, technological, and human factors that influenced schools' capacity to cope effectively with disruption (Nosratipour Meybodi, 2022). Crisis management training has also been shown to increase students' awareness and preparedness for responding to crisis situations (Asadi, 2022). These findings suggest that crisis management is not a fixed trait but a set of competencies that can be enhanced through targeted educational experiences. Moreover, the role of psychological and meaning-oriented resources should not be overlooked. Spirituality, personal meaning, values, and internal coherence can influence how individuals interpret and respond to conflict and crisis, particularly when uncertainty and emotional tension are high (Kirpik, 2024). Accordingly, interventions that address internal psychological needs and personal responsibility may be especially appropriate for strengthening adolescents' crisis-management capacities.

At the same time, adolescence is a critical period for the development and stabilization of academic motivation. Academic motivation refers to the set of internal and external processes that initiate, direct, and sustain students' engagement in educational activities. It influences effort, persistence, use of learning strategies, academic engagement, responsibility, resilience, and achievement. Students with stronger academic motivation are more likely to persist in the face of academic difficulty, regulate their behavior, and engage actively with learning tasks. Academic motivation is also closely connected with students' beliefs about their own competence and capacity for successful performance. Research has shown meaningful associations among academic motivation, academic self-efficacy, responsibility, and educational functioning. For example, responsibility among female secondary school students has been examined in relation to both academic motivation and academic self-efficacy, underscoring the interdependence of

motivational and self-regulatory processes (Abdollahi, 2023). Academic motivation has also been identified as an important mediator linking academic well-being with student engagement (Arab, 2022). In addition, students with higher academic motivation generally demonstrate more favorable academic achievement outcomes (Rezazadeh, 2022). Differences in academic motivation are also associated with differences in self-regulation and self-worth, indicating that motivation is embedded within a broader system of self-perceptions and adaptive learning behaviors (Hashemi & Kharouti, 2020). These findings emphasize that academic motivation is not an isolated educational variable but a central psychological process that influences how students perceive academic challenges and regulate their responses to them.

Contemporary research has further shown that academic motivation is influenced by emotional, contextual, and cognitive mechanisms. Students' fear of negative evaluation, self-efficacy beliefs, emotional responses, and self-regulated learning strategies can interact to determine the quality and persistence of academic motivation (Toprak & Yavuz, 2026). Basic psychological needs also appear to play a central role in motivational functioning. When needs for autonomy, competence, and meaningful connection are frustrated, students may become vulnerable to maladaptive academic patterns such as procrastination, perfectionistic avoidance, or disengagement (Tahiri et al., 2026). Similarly, in contemporary educational environments, problematic digital behaviors can interfere with learning responsibility and academic motivation, especially when students experience reduced behavioral control or become excessively engaged with digital games (Orhan & Kuloğlu, 2026). Educational disruptions can also shape motivational functioning. During the coronavirus pandemic, academic motivation was influenced by the emotional experiences of students, parents, and teachers in virtual education contexts, indicating that motivation develops through reciprocal interactions between students and their social environments (Mashayekhifard, 2020). Academic motivation has also been identified as an important factor in students' academic adjustment during periods of heightened uncertainty and anxiety (Sahebgherani, 2021). Collectively, this evidence highlights the importance of interventions that can improve both students' internal sense of control and their capacity to make adaptive behavioral choices in the face of academic and developmental stress.

One theoretical framework particularly relevant to these concerns is Glasser's choice theory. Choice theory proposes

that human behavior is purposeful and is fundamentally directed toward the satisfaction of basic psychological needs. According to this perspective, individuals attempt to meet needs related to survival, love and belonging, power or achievement, freedom, and fun through the choices they make in everyday life (Glasser, 2024). A central proposition of choice theory is that individuals have greater control over their own behavior than over external events or other people. Consequently, psychological well-being and effective functioning depend in part on learning to evaluate one's own behavior, recognize unmet needs, make responsible choices, and develop more effective interpersonal relationships. Choice theory emphasizes internal control rather than external control, arguing that attempts to dominate, blame, criticize, threaten, or control others often contribute to conflict and dissatisfaction. In contrast, behaviors such as listening, supporting, encouraging, respecting, trusting, accepting, and negotiating are believed to strengthen relationships and improve need satisfaction. For adolescents, these principles may be particularly valuable because this developmental period is characterized by increasing demands for autonomy, identity development, peer affiliation, academic responsibility, and decision-making. By helping adolescents distinguish between what they can and cannot control, choice theory may promote more adaptive responses to frustration, interpersonal disagreement, academic stress, and crisis.

Choice theory-based interventions have increasingly been applied in educational and adolescent populations. Research has shown that group training based on choice theory can improve psychological and developmental outcomes among adolescents, including internalizing problems, empathy, and identity-related transformations (Nooripour et al., 2023). Choice theory has also been applied to the prevention of maladaptive behaviors among youth, with evidence suggesting that its emphasis on responsibility, need satisfaction, and behavioral choice may support healthier decision-making (Supeni & Jusoh, 2021). In educational settings, choice theory-based training has demonstrated positive effects on academic resilience and subjective vitality among secondary school students (Saffari Bidehendi et al., 2021). It has also been associated with improvements in student responsibility and reductions in procrastination, suggesting that helping students recognize the consequences of their choices can strengthen self-regulation and educational accountability (Sharifkhani et al., 2020). In online learning environments, choice theory has similarly been examined as a framework for improving

student outcomes by increasing meaningful choice and personal responsibility for learning (Paullet & Pinchot, 2021). These findings are theoretically consistent with student-centered educational approaches, which tend to strengthen motivation when learners experience greater autonomy, active involvement, and ownership of the learning process (Partanen, 2020). Thus, choice theory may provide a useful psychological and educational framework through which adolescents can develop greater self-direction while simultaneously improving relationships with teachers, peers, and family members.

Choice theory may also be especially relevant to academic motivation because motivation is strongly affected by the degree to which students perceive themselves as autonomous and effective agents in the learning process. By focusing on personal responsibility, self-evaluation, purposeful decision-making, and the satisfaction of psychological needs, choice theory may strengthen both intrinsic and extrinsic aspects of academic motivation. Previous research comparing choice theory training with other interventions has found beneficial effects on students' academic functioning. Choice theory has been associated with improvements in academic vitality, differentiation of self, and flourishing, indicating that its benefits may extend beyond isolated behavioral outcomes to broader indicators of psychological and educational adjustment (Gharizadeh Beyragh, 2023). More specifically, choice theory training has demonstrated positive effects on students' flourishing and academic motivation (Gharizadeh et al., 2024). These findings provide direct support for examining choice theory as an intervention for motivational outcomes. Improvements in academic motivation may occur because students learn to recognize the relationship between their choices and educational consequences, evaluate whether current behaviors are helping them achieve desired goals, and replace ineffective behavioral patterns with more responsible alternatives. In addition, when students become more aware of their needs for freedom, competence, belonging, and achievement, they may become better able to identify personally meaningful reasons for participation in academic activities.

The broader literature on educational intervention further supports the modifiability of academic motivation and related self-regulatory capacities. Flipped instruction, for example, has been shown to influence both academic resilience and academic motivation by promoting greater student participation and active learning (Esmaeili & Amanzadeh, 2023). Training in cognitive and metacognitive

strategies can improve students' beliefs about their ability to manage academic demands while reducing maladaptive patterns such as academic procrastination (Pourfaridoun et al., 2026). Such findings are important because they demonstrate that motivation and self-management can be enhanced through structured training rather than being viewed as stable student characteristics. This is especially relevant for adolescents, whose motivational patterns are still developing and may be highly responsive to educational context, interpersonal feedback, and opportunities for autonomous decision-making. Choice theory may complement these approaches by addressing not only cognitive strategy use but also the motivational and relational foundations of behavior.

There is also a conceptual connection between crisis management and academic motivation that warrants attention. Adolescents who perceive themselves as unable to influence events may be more likely to react to stress with helplessness, avoidance, emotional dysregulation, or disengagement. These same patterns can undermine academic motivation. Conversely, adolescents who develop stronger internal control, responsibility, problem-solving skills, and awareness of psychological needs may be better equipped to manage both developmental crises and academic demands. Choice theory provides a common explanatory framework for both domains because it conceptualizes adaptive functioning as the result of responsible behavioral choices made in pursuit of need satisfaction. During crisis situations, adolescents trained in choice theory may become more capable of evaluating circumstances, distinguishing controllable from uncontrollable elements, and selecting behaviors that support effective coping. In academic contexts, the same skills may promote persistence, responsibility, and motivation. The association between motivation and adjustment is especially important because academic motivation contributes not only to achievement but also to broader patterns of adaptation and engagement (Arab, 2022). At the same time, crisis-management competence can protect students against the disruptive effects of acute and chronic stressors on educational functioning.

Despite the growing literature on choice theory and adolescent psychological functioning, several gaps remain. Existing studies have often focused on specific outcomes such as flourishing, academic vitality, resilience, procrastination, identity transformation, or responsibility rather than simultaneously investigating crisis management and academic motivation. Moreover, relatively few studies

have examined whether the effects of choice theory training extend across different temporal stages of crisis management, including preparedness before a crisis, effective functioning during a crisis, and adjustment after a crisis. Similarly, although academic motivation has been widely studied, examining both intrinsic and extrinsic motivational dimensions can provide a more differentiated understanding of how students respond to a choice theory-based intervention. Such differentiation is particularly important because external incentives and internal interest may respond differently to psychological training. Furthermore, evaluating outcomes at pretest, posttest, and follow-up allows researchers to determine not only whether an intervention produces immediate changes but also whether these improvements are maintained over time. Given the psychological and educational challenges faced by adolescent girls during lower secondary education, identifying interventions that can simultaneously enhance crisis-management capacities and academic motivation has practical implications for school counseling, preventive psychology, and educational planning.

Accordingly, the present study aimed to investigate the effectiveness of choice theory training on adolescent crisis management and academic motivation among female lower secondary school students.

2. Methods and Materials

2.1. Study Design and Participants

The present study employed an applied, quasi-experimental design with pretest, posttest, and follow-up assessments and a control group. The statistical population consisted of all female students enrolled in Grades 7 and 8 of lower secondary schools in Zahedan, Iran, during the 2024–2025 academic year. Following preliminary sampling and screening procedures, 60 eligible students were selected and assigned to three groups of 20 participants each, comprising two experimental groups and one control group. The participants were equally distributed across educational grades within the study groups, with students from both Grade 7 and Grade 8 represented in each group. After final determination of eligibility and group membership, baseline measurements were administered before implementation of the intervention. The experimental groups received the designated educational intervention, whereas the control group was placed on a waiting list and did not receive the intervention during the study period. The study design allowed changes in adolescent crisis management and

academic motivation to be examined across the pretest, posttest, and follow-up measurement occasions and permitted comparison of changes over time between the intervention and control conditions.

2.2. Data Collection Tools

Adolescent Crisis Management Questionnaire. Crisis management was assessed using the Crisis Management Questionnaire developed by Sarafrazi (2012). The instrument was originally developed to assess crisis management using an analytic network process and multicriteria decision-making framework. It consists of 18 items covering three major dimensions of crisis management: pre-crisis criteria, assessed by Items 1–6; during-crisis criteria, assessed by Items 7–12; and post-crisis criteria, assessed by Items 13–18. Items are rated on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree), with higher scores indicating a greater level of crisis management capability. The structure of the instrument permits assessment of both an overall crisis management score and scores reflecting the different phases of crisis management. Sarafrazi (2012) reported satisfactory internal consistency for the questionnaire, with a Cronbach's alpha coefficient greater than .70. In the present study, the instrument was used to assess changes in participants' crisis management before and after the intervention and at follow-up.

Academic Motivation Questionnaire. Academic motivation was measured using Harter's Academic Motivation Questionnaire (Harter, 1980, 1981), which was developed to assess motivational orientations among school students. The questionnaire contains 33 items and assesses academic motivation along the dimensions of intrinsic and extrinsic motivation. The items are designed to represent contrasting motivational orientations, with one pole reflecting intrinsic reasons for engaging in academic activities and the other reflecting extrinsic reasons. Responses are scored on a five-point Likert-type scale ranging from 1 to 5. Items 3, 4, 5, 9, 10, 15, 16, 19, 21, 27, and 31 are reverse-scored before calculation of the total and subscale scores. Previous Iranian studies have provided evidence supporting the reliability of the instrument. Zahiri and Rajabi (2009) reported a Cronbach's alpha coefficient greater than .92, while Kadivar et al. (2009) reported acceptable internal consistency, with Cronbach's alpha coefficients ranging from .74 to .86 across the questionnaire subscales. More recent applications of the instrument have

also demonstrated satisfactory reliability, with Cronbach's alpha coefficients of .89 reported by Rezazadeh (2022) and .91 reported by Arab (2022). In the present study, the questionnaire was administered at the pretest, posttest, and follow-up stages to evaluate changes in overall academic motivation as well as intrinsic and extrinsic motivational orientations.

2.3. Intervention

Following preliminary sampling, screening, final selection of the participants, group allocation, and administration of the pretest, the choice theory training program was implemented for the experimental group by the researcher. The intervention protocol was adapted from the choice theory training package developed by Ghari Zadeh et al. (2024), which was based on Glasser's choice theory (Glasser, 2013). The content validity and appropriateness of the training protocol were reviewed by three specialists in psychology, and minor modifications were considered where necessary on the basis of their professional recommendations. The program comprised 12 group-based sessions, each lasting approximately 70 minutes, delivered once per week over approximately two and a half months. The sessions were designed to familiarize participants progressively with the principal concepts and practical applications of choice theory. The initial session focused on welcoming participants, introducing group members, clarifying the objectives and structure of the program, and providing an initial introduction to emotional intelligence and choice theory. The second session introduced Glasser as the principal theorist, provided a brief overview of the development of choice theory, addressed its fundamental concepts, and discussed the concept of personal freedom, followed by assigned exercises. The third session focused on the five basic psychological needs, their role in interpersonal relationships, individual differences in the intensity of these needs, construction of a personal needs profile, evaluation of the degree to which each need was being satisfied on a scale from zero to ten, and application of these concepts to healthier relationships with family members, teachers, and peers. The fourth and fifth sessions addressed the concept of the quality world or desired world, the manner in which it develops, its relationship with the five basic needs, and its principal components, including people, objects or places, and beliefs or values; participants were also encouraged to identify the contents of their own quality world and complete related homework assignments. The sixth session introduced

the concept of total behavior and the behavioral car, including the four components of acting, thinking, feeling, and physiology, and examined the ways in which changes in these components may affect interpersonal relationships and individual functioning. The seventh session concentrated on the perceived world, individual differences in perception, sources of interpersonal conflict, perceptual filters, value clarification, and experiential exercises designed to illustrate differences in interpretation and perception. The eighth session focused on interpersonal relationships and conflict through the framework of basic needs, the quality world, the perceived world, and the central principles of choice theory; participants were introduced to seven disconnecting or destructive behaviors and seven connecting or caring behaviors and were taught the major axioms of choice theory as a framework for developing more effective relationships. Throughout the intervention, previous-session material was reviewed, homework was examined, participants' questions were addressed, and new exercises were assigned to facilitate the application of learned concepts in everyday academic, family, and peer contexts. The remaining sessions continued the consolidation and practical application of these choice theory principles in accordance with the 12-session training package. The control group remained on a waiting list and received no choice theory training during the intervention period. Outcome measures were administered to the experimental and control groups before the intervention, immediately after completion of the training program, and at follow-up to evaluate both immediate intervention effects and the maintenance of treatment gains over time.

2.4. Data Analysis

The collected data were analyzed using descriptive and inferential statistical procedures. Descriptive statistics were used to summarize participants' scores on adolescent crisis management, its dimensions, academic motivation, and its intrinsic and extrinsic components across the pretest, posttest, and follow-up assessments. To examine changes in the dependent variables over time and determine whether patterns of change differed across the study groups, repeated-measures analysis of variance (ANOVA) was employed. In this analysis, measurement occasion represented the within-subject factor, whereas study group represented the between-subject factor. The analysis was used to evaluate the main effect of time, the main effect of group, and particularly the group-by-time interaction, which

reflected whether changes in crisis management and academic motivation across the assessment occasions differed between the intervention and control conditions. Where applicable, comparisons across measurement occasions were used to determine whether improvements observed immediately after the intervention were maintained at follow-up. Statistical significance was evaluated at the conventional alpha level of .05.

Table 1

Descriptive Statistics for Crisis Management, Academic Motivation, and Their Components Across Measurement Stages

Variable	Measurement Stage	Choice Theory Group M	Choice Theory Group SD	Control Group M	Control Group SD
Pre-crisis management	Pretest	13.2	2.2	12.1	2.5
	Posttest	17.1	2.4	13.4	1.5
	Follow-up	16.9	2.8	12.7	2.0
During-crisis management	Pretest	12.7	2.5	12.3	1.9
	Posttest	16.9	2.6	13.9	2.1
	Follow-up	16.6	2.7	14.2	3.2
Post-crisis management	Pretest	12.3	2.1	12.4	2.3
	Posttest	17.6	2.8	14.3	2.2
	Follow-up	16.1	2.6	13.6	2.4
Total crisis management	Pretest	38.3	4.2	36.8	4.6
	Posttest	51.5	4.0	41.6	2.3
	Follow-up	49.7	3.7	40.5	4.2
Intrinsic motivation	Pretest	36.4	3.3	35.9	4.3
	Posttest	44.1	3.0	39.1	3.5
	Follow-up	46.1	3.9	37.7	4.5
Extrinsic motivation	Pretest	32.9	4.0	33.6	4.7
	Posttest	43.8	4.5	35.4	4.9
	Follow-up	44.4	4.1	36.0	4.0
Total academic motivation	Pretest	69.2	4.1	69.5	5.8
	Posttest	89.8	5.2	74.5	7.7
	Follow-up	90.5	6.4	73.8	6.5

As shown in Table 1, the two groups exhibited relatively comparable scores at pretest across most outcome variables, whereas substantially greater improvements were observed in the choice theory training group at posttest and follow-up. The mean total crisis management score in the intervention group increased from 38.3 at pretest to 51.5 at posttest and remained relatively high at follow-up ($M = 49.7$), whereas the corresponding scores in the control group changed only from 36.8 to 41.6 and 40.5. Similar patterns were observed for the pre-crisis, during-crisis, and post-crisis dimensions. Academic motivation also increased markedly in the choice theory group, from a pretest mean of 69.2 to 89.8 at posttest and 90.5 at follow-up, compared with relatively modest changes in the control group. Intrinsic motivation increased from 36.4 to 44.1 and subsequently to 46.1, while extrinsic

3. Findings and Results

Descriptive statistics were calculated for crisis management, including pre-crisis, during-crisis, and post-crisis management, as well as academic motivation and its intrinsic and extrinsic components at the pretest, posttest, and follow-up stages. Table 1 presents the means and standard deviations of the study variables for the choice theory training and control groups across the three measurement occasions.

motivation increased from 32.9 at pretest to 43.8 at posttest and 44.4 at follow-up. Overall, the descriptive findings suggest that participation in choice theory training was associated with substantial improvements in crisis management and academic motivation that were largely maintained during the follow-up period.

Prior to conducting repeated-measures analysis of variance, the relevant statistical assumptions were examined. Box's M tests for equality of covariance matrices were nonsignificant for total crisis management, Box's $M = 14.87$, $F = 1.17$, $p = .300$; pre-crisis management, Box's $M = 13.21$, $F = 1.04$, $p = .410$; during-crisis management, Box's $M = 14.56$, $F = 1.14$, $p = .320$; post-crisis management, Box's $M = 12.89$, $F = 1.01$, $p = .435$; total academic motivation, Box's $M = 15.67$, $F = 1.23$, $p = .255$; intrinsic

motivation, Box's $M = 14.12$, $F = 1.11$, $p = .345$; and extrinsic motivation, Box's $M = 13.45$, $F = 1.06$, $p = .390$. Thus, the assumption of homogeneity of covariance matrices was satisfied. Mauchly's test of sphericity was also nonsignificant for total crisis management, $\chi^2(2) = 4.58$, $p = .101$; pre-crisis management, $\chi^2(2) = 4.05$, $p = .132$; during-crisis management, $\chi^2(2) = 4.35$, $p = .114$; post-crisis

management, $\chi^2(2) = 3.58$, $p = .167$; total academic motivation, $\chi^2(2) = 4.15$, $p = .126$; intrinsic motivation, $\chi^2(2) = 3.85$, $p = .146$; and extrinsic motivation, $\chi^2(2) = 4.05$, $p = .132$. Accordingly, the sphericity assumption was met for all dependent variables, and no correction to the degrees of freedom was required.

Table 2

Repeated-Measures Analysis of Variance for Crisis Management, Academic Motivation, and Their Components

Variable	Effect	F	df	p	Partial η^2
Total crisis management	Time	41.12	2, 114	< .001	.587
	Time $\times$ Group	16.98	4, 114	< .001	.542
	Group	59.85	2, 57	< .001	.677
Pre-crisis management	Time	35.45	2, 114	< .001	.553
	Time $\times$ Group	14.75	4, 114	< .001	.514
	Group	29.03	2, 57	< .001	.505
During-crisis management	Time	34.12	2, 114	< .001	.554
	Time $\times$ Group	14.10	4, 114	< .001	.504
	Group	13.27	2, 57	< .001	.318
Post-crisis management	Time	33.67	2, 114	< .001	.541
	Time $\times$ Group	13.76	4, 114	< .001	.498
	Group	19.29	2, 57	< .001	.404
Total academic motivation	Time	36.45	2, 114	< .001	.556
	Time $\times$ Group	14.43	4, 114	< .001	.512
	Group	59.62	2, 57	< .001	.677
Intrinsic motivation	Time	33.21	2, 114	< .001	.537
	Time $\times$ Group	13.42	4, 114	< .001	.498
	Group	36.72	2, 57	< .001	.563
Extrinsic motivation	Time	31.56	2, 114	< .001	.526
	Time $\times$ Group	12.23	4, 114	< .001	.481
	Group	21.82	2, 57	< .001	.434

As reported in Table 2, repeated-measures ANOVA revealed significant main effects of time for total crisis management, $F(2, 114) = 41.12$, $p < .001$, $\eta^2 = .587$, as well as for pre-crisis management, $F(2, 114) = 35.45$, $p < .001$, $\eta^2 = .553$; during-crisis management, $F(2, 114) = 34.12$, $p < .001$, $\eta^2 = .554$; and post-crisis management, $F(2, 114) = 33.67$, $p < .001$, $\eta^2 = .541$. More importantly, the Time $\times$ Group interactions were statistically significant for total crisis management, $F(4, 114) = 16.98$, $p < .001$, $\eta^2 = .542$; pre-crisis management, $F(4, 114) = 14.75$, $p < .001$, $\eta^2 = .514$; during-crisis management, $F(4, 114) = 14.10$, $p < .001$, $\eta^2 = .504$; and post-crisis management, $F(4, 114) = 13.76$, $p < .001$, $\eta^2 = .498$, indicating that changes over time differed significantly across the study groups. Significant between-group effects were also found for total crisis management, $F(2, 57) = 59.85$, $p < .001$, $\eta^2 = .677$, and all three crisis-management components. Regarding academic motivation, significant time effects were observed for total

academic motivation, $F(2, 114) = 36.45$, $p < .001$, $\eta^2 = .556$; intrinsic motivation, $F(2, 114) = 33.21$, $p < .001$, $\eta^2 = .537$; and extrinsic motivation, $F(2, 114) = 31.56$, $p < .001$, $\eta^2 = .526$. The Time $\times$ Group interactions were likewise significant for total academic motivation, $F(4, 114) = 14.43$, $p < .001$, $\eta^2 = .512$; intrinsic motivation, $F(4, 114) = 13.42$, $p < .001$, $\eta^2 = .498$; and extrinsic motivation, $F(4, 114) = 12.23$, $p < .001$, $\eta^2 = .481$. Significant between-group effects were also obtained for total academic motivation, $F(2, 57) = 59.62$, $p < .001$, $\eta^2 = .677$; intrinsic motivation, $F(2, 57) = 36.72$, $p < .001$, $\eta^2 = .563$; and extrinsic motivation, $F(2, 57) = 21.82$, $p < .001$, $\eta^2 = .434$. Taken together with the descriptive pattern, these findings indicate that choice theory training produced significant improvements in crisis management and academic motivation relative to the control condition, and that the intervention effects were largely maintained at follow-up.

4. Discussion

The present study investigated the effectiveness of choice theory training on adolescent crisis management and academic motivation among female lower secondary school students. The findings showed that participation in the choice theory intervention was associated with significant improvements in total crisis management and its three components, namely pre-crisis, during-crisis, and post-crisis management. Significant improvements were also observed in total academic motivation and in both intrinsic and extrinsic motivation. The repeated-measures analyses indicated significant effects of time, group, and the interaction between time and group, suggesting that changes across the pretest, posttest, and follow-up stages were not attributable merely to the passage of time but were related to participation in the intervention. The descriptive findings also showed that the experimental group demonstrated marked improvement at posttest, with most of these gains being maintained at follow-up. These results provide evidence that structured training based on choice theory may be an effective psychological and educational intervention for strengthening adolescents' ability to manage stressful or crisis-related situations while simultaneously enhancing their motivational functioning in the academic context.

One of the principal findings was the significant improvement in total crisis management among students who received choice theory training. The intervention group demonstrated a substantial increase in crisis-management scores from pretest to posttest, and although a modest decline was observed at follow-up, scores remained considerably higher than baseline levels. This finding is consistent with the broader literature suggesting that crisis-management abilities can be strengthened through systematic psychological and educational training rather than being regarded as fixed characteristics. Crisis situations in adolescence are often complicated by heightened emotional reactivity, developmental uncertainty, interpersonal conflict, and incomplete maturation of self-regulatory capacities. Effective management of such situations requires the ability to recognize problems, evaluate possible responses, regulate emotional reactions, and assume responsibility for behavioral choices. These capacities are central to choice theory, which emphasizes personal responsibility, internal control, awareness of needs, and evaluation of the effectiveness of current behaviors (Glasser, 2024). By helping adolescents recognize which aspects of a stressful situation can be controlled and which

cannot, choice theory may reduce impulsive or externally directed responses and promote more deliberate and adaptive coping.

The improvement observed in crisis management is also consistent with research indicating that adolescents benefit from structured interventions targeting self-awareness, responsibility, and psychological adjustment. Nooripour et al. found that group training based on choice theory improved internalizing problems, empathy, and identity-related transformations among adolescents, suggesting that this framework can influence multiple domains of psychological adaptation (Nooripour et al., 2023). Such outcomes are particularly relevant to crisis management because adolescents who are better able to understand their emotional states, recognize others' perspectives, and develop a more coherent sense of identity may respond more effectively to stressful and conflictual situations. Furthermore, crisis management training itself has been shown to increase students' awareness and preparedness for managing crisis situations (Asadi, 2022). The present findings therefore extend previous evidence by suggesting that choice theory, although not limited to crisis intervention, can strengthen broader psychological capacities that are directly relevant to managing crises.

The significant effects observed for pre-crisis management can be explained through the preventive and anticipatory orientation promoted by choice theory. Pre-crisis management involves awareness, preparation, recognition of potential difficulties, and the capacity to make decisions before stress escalates. Through the intervention, participants were encouraged to identify their basic needs, examine the extent to which those needs were being satisfied, recognize ineffective behavioral patterns, and evaluate the consequences of their choices. These processes may have increased their ability to anticipate interpersonal or academic difficulties and to select more constructive responses before problems developed into crises. This interpretation is compatible with research emphasizing the importance of systematic preparedness in educational crisis management (Mirhamzeh, 2022). The importance of identifying and organizing multiple factors before and during educational crises has also been highlighted in research conducted during the coronavirus pandemic, where effective crisis management depended on coordinated psychological, educational, and structural resources (Nosratipour Meybodi, 2022). Although the present study focused on individual students rather than institutional

management, the underlying principle of preparedness remains relevant.

The intervention also significantly improved during-crisis management. This finding may reflect the emphasis of choice theory on distinguishing between external events and personal responses. Adolescents frequently have limited control over stressful events, interpersonal tensions, academic demands, or family circumstances, but choice theory teaches that they retain greater control over their own actions, thoughts, and behavioral responses. This internal-control orientation may have enabled participants to respond more adaptively when confronted with difficult situations. The “total behavior” concept presented in the intervention, which integrates acting, thinking, feeling, and physiological processes, may have helped students understand how changing behavioral and cognitive responses can influence emotional outcomes. This is especially important during adolescence, when crisis responses can involve impulsivity, emotional escalation, and interpersonal conflict. The clinical literature also emphasizes that assessment and management of adolescent crises should be developmentally sensitive and should focus on immediate coping, safety, and stabilization (Leverett et al., 2020). The present results suggest that choice theory training may support such adaptive functioning by strengthening adolescents’ perceived behavioral agency.

Similarly, the significant improvement in post-crisis management may be related to the intervention’s emphasis on self-evaluation, responsibility, and learning from behavioral consequences. Effective post-crisis management does not involve merely returning to previous functioning; it also requires reflection, adjustment, and development of more effective strategies for future situations. Choice theory encourages individuals to evaluate whether their present behaviors bring them closer to or further from what they want. This process may promote adaptive reflection after stressful events and reduce the tendency to rely on blame, criticism, or avoidance. The role of personal meaning and internal resources in crisis and conflict management has also been emphasized in the literature, particularly where values, beliefs, and psychological coherence contribute to adaptive responses (Kirpik, 2024). Thus, the choice theory intervention may have improved post-crisis functioning by giving participants a framework through which stressful experiences could be interpreted as opportunities for behavioral adjustment and greater self-responsibility.

The second major finding of the study was the significant improvement in academic motivation. Students in the choice

theory group showed a substantial increase in total academic motivation from pretest to posttest, and the improvement was sustained at follow-up. This result is consistent with previous research directly examining the effects of choice theory on students’ academic functioning. Gharizadeh et al. reported that choice theory training had beneficial effects on students’ flourishing and academic motivation (Gharizadeh et al., 2024). Similarly, Gharizadeh Beyragh found that choice theory was effective in improving academic vitality and related psychological outcomes (Gharizadeh Beyragh, 2023). The present findings reinforce these studies and suggest that the motivational benefits of choice theory can be observed among female lower secondary school students as well.

The positive effect on academic motivation can be understood through the central concepts of autonomy, responsibility, and need satisfaction. Choice theory proposes that individuals engage in behavior in an effort to satisfy basic needs related to belonging, achievement, freedom, fun, and survival (Glasser, 2024). In the academic setting, students may experience greater motivation when they perceive educational activities as connected to personal goals, competence, relationships, and meaningful choice. When students feel that learning is entirely imposed by external authorities, motivation may become fragile and dependent on rewards, punishment, or evaluation. In contrast, an internal-control perspective encourages students to recognize their own role in learning and to make purposeful decisions about effort and engagement. This explanation is consistent with evidence showing that student-centered educational environments can strengthen motivation by increasing autonomy and meaningful participation (Partanen, 2020). Similarly, studies of online education have shown that applying choice theory principles can positively influence student outcomes by promoting personal responsibility and involvement in learning (Pauilet & Pinchot, 2021).

The findings concerning intrinsic motivation are especially important because intrinsic motivation reflects engagement in academic activities for interest, mastery, satisfaction, or personal meaning rather than solely for external rewards. The intervention may have strengthened intrinsic motivation by helping students identify the relationship between educational behavior and personally valued goals. Recognition of basic needs and the “quality world” may have encouraged students to consider what they genuinely value and how academic behavior can contribute to desired future outcomes. The observed improvement is

consistent with research showing that motivational processes are linked with self-efficacy, self-regulation, and emotional mechanisms (Toprak & Yavuz, 2026). Academic motivation is also closely connected to responsibility and self-beliefs among secondary school students (Abdollahi, 2023). Therefore, by enhancing perceived personal agency and responsibility, choice theory may indirectly strengthen students' willingness to engage with academic tasks for more internally endorsed reasons.

The significant improvement in extrinsic motivation can also be explained within the educational context of adolescence. Although choice theory emphasizes internal control, adolescents continue to function within environments shaped by grades, teacher approval, family expectations, competition, and future educational opportunities. The intervention may not eliminate these external sources of motivation but may help students interpret them more adaptively and integrate them with personally meaningful goals. Academic motivation has been associated with achievement and educational adjustment in previous research (Rezazadeh, 2022; Sahebgherani, 2021). Moreover, emotional and contextual influences can affect the degree to which students sustain effort under academic pressure (Mashayekhifard, 2020). The present study showed that extrinsic motivation remained elevated at follow-up, indicating that the intervention may have improved students' responsiveness to external academic demands while also enhancing their perceived ability to manage those demands.

The broader pattern of results is also compatible with studies showing that academic motivation can be modified through educational and psychological interventions. Flipped instruction has been shown to increase academic resilience and motivation by increasing active student participation (Esmaeili & Amanzadeh, 2023). Cognitive and metacognitive strategy training has similarly been associated with improvements in adaptive academic functioning and reductions in procrastination (Pourfaridoun et al., 2026). Choice theory appears to operate through a related but distinct mechanism by emphasizing responsibility for behavioral choices and the satisfaction of psychological needs. Research also suggests that choice theory-based training can improve responsibility and reduce academic procrastination (Sharifkhani et al., 2020), while enhancing academic resilience and subjective vitality (Saffari Bidehendi et al., 2021). Such outcomes are important because motivated students are more likely to persist when difficulties arise, regulate their behavior effectively, and interpret setbacks as manageable rather than overwhelming.

The simultaneous improvement in crisis management and academic motivation suggests that these two outcomes may share common psychological mechanisms. Both require self-regulation, a sense of control, responsibility, goal orientation, and the ability to evaluate consequences. Adolescents who believe that they have little influence over their behavior may be more vulnerable to disengagement during academic difficulty and to maladaptive responses during crises. Conversely, students who learn to distinguish between controllable and uncontrollable aspects of situations may become more effective in both domains. Current motivational research emphasizes the central role of basic psychological needs in adaptive academic behavior and shows that need frustration can contribute to procrastination and dysfunctional patterns (Tahiri et al., 2026). Similarly, problematic digital behavior and reduced learning responsibility may undermine students' academic motivation (Orhan & Kuloğlu, 2026). By increasing awareness of needs and personal choice, the intervention may have provided participants with a coherent framework for managing both educational demands and emotionally challenging situations.

The developmental relevance of these findings should also be emphasized. Adolescence is a period in which identity, autonomy, interpersonal relationships, and future goals become increasingly salient. Difficulties in these areas can contribute to crisis experiences, while successful resolution can promote psychological growth. Motivational approaches to adolescent identity-related challenges emphasize the importance of meaning, guidance, and internal resources in resolving developmental crises (Ghorbani & Golmohammadi, 2025). Choice theory may be particularly suitable for adolescents because it acknowledges the importance of freedom while simultaneously linking freedom with responsibility. It also places strong emphasis on the quality of interpersonal relationships, which are central during adolescence. Its focus on replacing destructive relational behaviors with supportive and connecting behaviors may contribute to healthier interactions with peers, family members, and teachers. This relational dimension may partly explain why choice theory has been applied successfully to a range of youth problems and preventive interventions (Supeni & Jusoh, 2021).

Despite the significant findings, several limitations should be considered. The sample consisted exclusively of female students in Grades 7 and 8 from one city, which limits the generalizability of the findings to male students, other age groups, different educational levels, or students from

other sociocultural contexts. The relatively small sample size may also reduce the precision of effect estimates and limit the ability to examine individual differences in treatment response. The study relied primarily on self-report questionnaires, which may be affected by social desirability, response tendencies, or participants' subjective interpretations of items. In addition, although a follow-up assessment was included, the duration of follow-up was limited and therefore does not establish whether the observed effects would persist over a longer period. The intervention was administered in a group format, and possible effects of group interaction, facilitator characteristics, or expectancy were not independently controlled.

Future studies should replicate the present research with larger and more diverse samples, including male and female students from different educational levels, geographical regions, and socioeconomic backgrounds. Longer follow-up periods would be useful for determining the durability of intervention effects and identifying whether booster sessions are necessary to maintain gains. Future research could also compare choice theory training with other psychological interventions, such as cognitive-behavioral, mindfulness-based, or metacognitive programs, to clarify their relative and unique mechanisms of action. Incorporating teacher, parent, or counselor reports and behavioral indicators would reduce reliance on self-report measures. Researchers could also examine potential mediators, such as perceived control, responsibility, self-efficacy, emotion regulation, basic need satisfaction, or quality of interpersonal relationships, to determine how choice theory produces improvements in crisis management and academic motivation.

In practical terms, school psychologists, counselors, and educational administrators may consider integrating structured choice theory training into preventive and developmental programs for adolescents. Sessions can be incorporated into school counseling, life-skills education, or student support programs and adapted to address academic stress, interpersonal conflict, responsibility, and crisis preparedness. Teachers may also benefit from using choice-supportive communication strategies that emphasize responsibility, respectful relationships, and student participation rather than excessive external control. Training parents in compatible principles may further strengthen consistency across school and home environments. Given that the intervention was associated with improvements in both crisis management and academic motivation, its application may be especially useful for students who

experience academic disengagement, interpersonal difficulties, or limited confidence in their ability to cope with stressful situations.

Authors' Contributions

Authors equally contributed to this article.

Declaration

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

Transparency Statement

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Declaration of Interest

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Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

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