

The Effectiveness of Neuro-Linguistic Programming Training on Emotional Self-Regulation and Academic Motivation of Female Students

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Abstract

Objective: Adolescence is a critical developmental period marked by rapid biological, cognitive, and social changes, during which emotional self-regulation and academic motivation serve as key protective factors for mental health and educational success. The present study aimed to investigate the effectiveness of Neuro-Linguistic Programming (NLP) training on emotional self-regulation and academic motivation of female junior high school students. **Method:** The research method was quasi-experimental with a pretest-posttest control group design. The statistical population included all female students in District One of the Qazvin Department of Education during the 2024-2025 academic year, from which 50 students were selected using convenience sampling and randomly assigned to an experimental group (n=25) and a control group (n=25). The experimental group received NLP training in twelve 90-minute sessions (one session per week), while the control group received no intervention. Data were collected using the Emotion Regulation Questionnaire (Hofmann & Kashdan, 2010) and the Academic Motivation Scale (Harter, 1980). Data were analyzed using univariate and multivariate analysis of covariance (ANCOVA and MANCOVA) in SPSS version 25. **Findings:** The results indicated that NLP training had a significant effect on students' academic motivation ($p < .05$), but did not have a significant effect on their emotional self-regulation ($p > .05$). **Conclusion:** Considering the positive effect of this intervention on academic motivation, school counselors and educational psychologists are recommended to use the NLP training package to increase students' academic motivation, especially for female junior high school students who experience declining academic motivation. Furthermore, due to the lack of effect of this approach on emotional self-regulation, the use of complementary approaches to improve this construct is suggested.

Keywords: Academic motivation, Emotional self-regulation, Neuro-Linguistic Programming (NLP)

Introduction

Adolescence, as one of the most sensitive stages of development, is accompanied by rapid changes in biological, cognitive, and social domains. It is a period during which the ability to regulate emotions becomes vital for successful adaptation to environmental pressures. Adolescents facing academic stress, parental expectations, and complex peer relationships require psychological resources that render them resilient against adversities (Gibson-Cline, 2026). Gross's (1998) model includes five stages of emotion regulation: situation selection, situation modification, attentional deployment, cognitive change, and response modulation. Among these, emotional self-regulation and academic motivation play key roles as protective factors in adolescent mental health and academic success (Wigfield & Eccles, 2000). Adolescents who possess the ability to regulate their emotions and have sufficient motivation for learning are less likely to engage in high-risk behaviors or experience academic decline.

Emotional self-regulation refers to the processes through which individuals monitor, evaluate, and modify their emotions (Johnston et al., 2025). Gross (2024), in his process model, has identified five types of emotion regulation strategies. Two primary strategies that have received considerable attention in research are cognitive reappraisal and suppression. Cognitive reappraisal is an antecedent-focused strategy activated before a full emotional response occurs, involving changing one's interpretation of a situation to reduce its emotional impact. In contrast, suppression is a response-focused strategy applied after an emotion has already been generated, involving the inhibition of emotion-expressive behaviors (de Jesús Gómez & Cornu-Labat, 2024). Research findings indicate that cognitive reappraisal is more effective than suppression and is associated with more positive outcomes, including higher psychological well-being and lower depressive symptoms (Moyal et al., 2014). From a neurodevelopmental perspective, self-regulation abilities undergo significant changes during adolescence. The asynchronous development between the limbic system and the prefrontal cortex during this period renders adolescents prone to intense emotional reactions and impulsive behaviors (Martin & Ochsner, 2016). Deficits in emotional self-regulation are associated with numerous negative consequences, including increased high-risk behaviors, interpersonal difficulties, and academic underperformance. Therefore, enhancing emotional self-regulation skills is regarded as a primary goal of psychological interventions in schools (Harley et al., 2019; Wong et al., 2023; Romo et al., 2025).

Academic achievement motivation refers to the set of factors that direct, energize, and sustain goal-oriented behavior toward learning and attaining success in academic contexts. Expectancy-value theory (Wigfield, 1994) is one of the influential theoretical frameworks in this area. According to this theory, achievement motivation is a function of two types of beliefs: (1) expectancy beliefs, which pertain to an individual's judgment of their ability to perform tasks successfully, and (2) value beliefs, which encompass the importance, intrinsic enjoyment, utility, and perceived costs of a task. Self-determination theory (Deci & Ryan, 2012) also emphasizes the role of three basic psychological needs—autonomy, competence, and relatedness—in shaping intrinsic motivation. During adolescence, interest in learning often declines, a phenomenon exacerbated by hormonal changes, prefrontal cortex development, and the increasing salience of peer relationships.

Adolescents with low achievement motivation not only demonstrate weaker academic performance but are also at greater risk of dropping out and engaging in antisocial behaviors. Therefore, designing and implementing effective interventions to enhance academic motivation in this age group is of particular importance (Tolibdjanovna, 2024). In recent decades, researchers in educational and health psychology have designed and implemented various interventions to enhance adolescents' emotional self-regulation and academic motivation. These interventions cover a broad spectrum. In the cognitive-behavioral domain, programs such as stress inoculation training (Meichenbaum, 1988) and mindfulness-based stress reduction (Kabat-Zinn, 2003) have been used to reduce emotional distress. However, among newer approaches, Neuro-Linguistic Programming (NLP) has attracted considerable attention due to its specific focus on mental patterns and their connection to observable behaviors (Tosey & Mathison, 2009). The NLP approach is based on the premise that there is a direct relationship among neural processes, language, and acquired behavioral patterns, and that by changing an individual's "mental maps," behavior can be altered (Looti, 2025).

Neuro-Linguistic Programming (NLP) is an approach founded in the mid-1970s by Richard Bandler and John Grinder at the University of California, Santa Cruz (Sturtivant & Cox, 2018). Their initial aim was to model the communication and therapeutic patterns of three prominent therapists of the time: Fritz Perls (founder of Gestalt therapy), Virginia Satir (pioneer of family therapy), and Milton Erickson (the father of clinical hypnotherapy) (Looti, 2025). NLP is rooted in the idea that there is a close connection among neural processes ("neuro"), language ("linguistic"), and learned behavioral patterns ("programming") (Ready & Burton, 2025). Key principles of NLP include the belief that the map is not the territory that is, each individual possesses a unique mental model of the world, and if a way can be found to change that map, behavior will also change (Grinder, 2013). The main techniques of NLP are rapport building to establish effective communication with others, anchoring to create a link between a specific stimulus and an emotional state, reframing to alter an individual's interpretation of a situation, and modeling to learn successful behaviors from others (Archana & Kannadasan, 2024). Despite NLP's popularity in fields such as self-help, business, and coaching, some researchers have criticized the lack of sufficient empirical evidence for its effectiveness (Sturtivant & Cox, 2018). Nevertheless, recent studies have shown that NLP can positively affect variables such as achievement motivation and emotional intelligence (Shaker & Obalasi, 2018).

Regarding the effectiveness of NLP on emotional self-regulation and academic motivation, there is a limited but growing body of research. Internationally, Sturtivant and Cox (2018), in their review study on the application of NLP in organizational and educational settings, showed that training in NLP techniques can improve self-efficacy and achievement motivation. Tosey and Mathison (2009), in their systematic review of NLP research, also reported evidence for the effectiveness of this approach in the domains of communication and learning, although they emphasized the need for more rigorous studies. Domestically, Shaker and Obalasi (2018), in a study conducted with teachers, demonstrated that training in NLP strategies had a significant effect on teachers' emotional intelligence and critical thinking, given that emotional self-regulation is

considered one of the main components of emotional intelligence. Nevertheless, no study has yet been found that specifically tested the effectiveness of a structured NLP protocol on emotional self-regulation and academic motivation within the statistical population of female junior high school students in Iran.

A review of the literature indicates that despite preliminary evidence for the effectiveness of NLP on related psychological variables, there is a significant research gap regarding the application of this approach to female junior high school students. Previous studies have either focused on adult populations (teachers and employees) (Shaker & Obalasi, 2018) or have merely addressed general variables such as emotional intelligence, whereas adolescent girls in junior high school face unique challenges, including pressures of early puberty, stereotypical gender roles, and increasing academic competition. These specific challenges heighten the need for interventions tailored to this age group. On the other hand, studies have shown that during adolescence, particularly in the ninth grade when students face crucial exams and academic track selection, academic motivation declines significantly. Failure to address this research gap deprives school counselors of evidence-based intervention packages for this specific age group. Given the capabilities of NLP in modifying mental patterns and enhancing self-efficacy, this approach appears to be an effective and practical intervention for improving female students' emotional self-regulation and academic motivation. The main aim of the present study is to investigate the effect of Neuro-Linguistic Programming (NLP) training on the emotional self-regulation and academic motivation of female students.

Hypotheses:

H1: NLP training has a significant effect on the academic motivation of female students.

H2: NLP training has a significant effect on the emotional self-regulation of female students.

Methodology

The present study was applied in terms of purpose and quasi-experimental in terms of method, employing a pretest-posttest control group design in which one experimental group (receiving Neuro-Linguistic Programming training) and one control group (receiving no intervention) were examined. The statistical population comprised all female junior high school students in District One of the Qazvin Department of Education who were enrolled in schools during the 2024–2025 academic year. The research sample consisted of 50 ninth-grade female students from the same school in Qazvin Province, selected through convenience sampling. The sample size was determined by referring to Cohen's (1988) table for determining sample size in experimental studies, with a confidence level of 0.95, an effect size of 0.5, and a test power of 0.90, resulting in 25 participants per group. Inclusion criteria for the study included voluntary willingness to participate, regular school attendance, availability to attend intervention sessions, absence of serious psychological problems or disorders based on the school counselor's assessment. Exclusion criteria included voluntary withdrawal from cooperation, non-cooperation in completing questionnaires, absence from more than two treatment sessions, failure to complete therapeutic assignments, and the occurrence of unforeseen

events such as severe illness or the death of relatives during the study. The following instruments were used for data collection:

Emotion Regulation Questionnaire (ERQ): This questionnaire was developed by Hofmann and Kashdan (2010). It comprises 20 items and three subscales: adjustment (7 items), concealment (8 items), and tolerance style (5 items). The response format is based on a 5-point Likert scale ranging from "not at all true of me" (score 1) to "very true of me" (score 5). The mean score of each emotional style item ranges from 1 to 5, and the score of each emotional style is obtained by dividing the subscale score by the number of its items. The validity of this questionnaire was normed in Hofmann and Kashdan's (2010) study on student samples (first sample: 434 individuals). The numerical results of exploratory factor analysis confirmed the three-factor structure with the following factor loadings: the concealment subscale comprising 8 items with factor loadings ranging from 0.56 to 0.85, the adjustment subscale comprising 7 items with factor loadings between 0.61 and 0.76, and the tolerance subscale comprising 5 items with factor loadings between 0.52 and 0.72. Hofmann and Kashdan (2010) obtained the reliability of this questionnaire using Cronbach's alpha coefficient, reporting coefficients of 0.82 for adjustment, 0.84 for concealment, and 0.68 for tolerance. In Karshki's (2013) study, which aimed to examine the validity of this questionnaire on undergraduate students at Ferdowsi University and Mashhad University of Medical Sciences using principal component analysis and construct validity, the construct validity of the questionnaire was confirmed with three factors. Cronbach's alpha coefficients were also used to assess reliability; the Cronbach's alpha coefficients obtained were 0.70 for concealment, 0.75 for adjustment, and 0.50 for tolerance (Karshki, 2013). In the present study, Cronbach's alpha coefficients were 0.86 for adjustment, 0.85 for concealment, 0.64 for tolerance, and 0.75 for the entire questionnaire.

Harter's Academic Motivation Scale (HAMS): To measure academic motivation, the Harter Academic Motivation Scale was used. This scale comprises 33 items and aims to assess academic motivation among students. Harter's original scale measures academic motivation using bipolar items, with one pole representing intrinsic motivation and the other pole extrinsic motivation. Items 1, 2, 6, 7, 8, 12, 13, 14, 18, 19, 20, 24, 25, 26, 29, 30, and 33 measure intrinsic motivation, while items 3, 4, 5, 9, 10, 11, 15, 16, 17, 21, 22, 23, 27, 28, 31, and 32 measure extrinsic motivation. This instrument is a modified version of Harter's scale as an academic motivation assessment tool. The scale is scored on a 5-point Likert scale, with the score for each option being: almost always (1), most of the time (2), sometimes (3), rarely (4), and never (5). The total score of the questionnaire ranges from 33 to 165. Harter (1981) reported subscale reliability coefficients using the Kuder-Richardson formula ranging from 0.54 to 0.84, and test-retest coefficients over a 9-month period ranging from 0.48 to 0.63 and over a five-month period in another sample ranging from 0.58 to 0.76 (Rezaei, Tohidi, & Mousavi Nasab, 2018). In Sadraei et al.'s (2022) study, Cronbach's alpha coefficient was 0.86 and the test-retest reliability after 5 weeks was 0.79. The reliability of this questionnaire was reported by Falehgari et al. (2023) using Cronbach's alpha as 0.82. In the present study, Cronbach's alpha for the entire questionnaire was 0.86.

Procedure

To conduct this study, the researcher first visited a girls' junior high school in District One of Qazvin City that had been introduced by the local Department of Education. Upon presenting letters of introduction from the Department of Education and the researcher's university, along with an explanation of the research objectives, permission was obtained from the school principal to conduct the study at that school. To conduct this study, the researcher first visited a girls' junior high school in District One of Qazvin City that had been introduced by the local Department of Education. Upon presenting letters of introduction from the Department of Education and the researcher's university, along with an explanation of the research objectives, permission was obtained from the school principal to conduct the study at that school. The pretest was administered to both groups one week prior to the first training session. The experimental group received NLP training over twelve 90-minute sessions held once per week. The training sessions were conducted at the school by the researcher, who had completed specialized NLP training courses. The session content included an introduction to key NLP principles (such as rapport building with clients, SMART goal setting, cognitive restructuring, modeling techniques, and methods for reinforcing self-efficacy beliefs). Each session began with a review of the previous session's homework and ended with new homework assignments for practice outside the sessions. During this period, the control group received no intervention and continued with their regular school curriculum; they were placed on a waiting list and were offered the NLP training after the completion of the study. The posttest was administered to both groups immediately after the final training session (session 12) on the same day. No follow-up assessment was conducted. Data obtained from the pretest and posttest were analyzed using descriptive statistics (means and standard deviations) and inferential statistics (univariate and multivariate analysis of covariance). Prior to conducting inferential analyses, statistical assumptions including normality of data distribution (tested using the Kolmogorov-Smirnov test) and homogeneity of variances (tested using Levene's test) were examined. All analyses were performed using SPSS version 25, and the significance level was set at 0.05.

Table 1.

Structure of Sessions of the Neuro-Linguistic Programming (NLP) Training Protocol

Session	Session Goal	Session Content
First	Introduction	Familiarization with participants, definition of NLP and its applications, administration of pretest
Second	Discovering patterns and modeling	Discovering communication patterns in NLP, accepting full responsibility for one's behaviors and reactions, understanding how others communicate with each other, effective communication, letting go of emotions and feelings and focusing on outcomes, in-class exercise
Third	Understanding the unconscious mind	Recognizing the difference between the conscious and unconscious mind, understanding how the brain works, overcoming fears (phobia management), beliefs and values, in-class exercise

Fourth	Life management	Taking control of memories, the path to excellence, the four-part success formula, the wheel of life, goal notebook, in-class exercise
Fifth	Sensory awareness	Recognizing and controlling the five senses, listening to the world of words, understanding the importance of eyes, the three dimensions of auditory, visual, and kinesthetic, in-class exercise
Sixth	Building intimacy	Understanding why intimacy is important, dealing with difficult people, the ability to say no, expanding one's choices for responding and reacting, understanding others' experiences, in-class exercise
Seventh	Mental programs	Examining mental programs and temporal patterns, discovering mental programs and behaviors, understanding similarities and differences, time perspective, integrating mental programs, in-class exercise
Eighth	Controlling experiences	Regulating and controlling sensory inputs, letting go of limiting beliefs and creating empowering beliefs, the whistling technique, understanding very important senses, in-class exercise
Ninth	Working with logical levels	Understanding logical levels, using the NLP model to achieve alignment, discovering one's goals, focusing on work and life, forming work teams, practicing logical levels
Tenth	Time management	Discovering the timeline, understanding the timeline, releasing the negative impact of inappropriate emotions and feelings, changing the timeline, understanding how to organize time, creating the future in the timeline, in-class exercise
Eleventh	Meta model, discovering trance language	Understanding the meta model, gathering specific information using the meta model, applying the meta model, influencing listeners, applying the Milton model, in-class exercise
Twelfth	Summary and posttest	Summarizing and reviewing the content with the help of participants, administering posttest

The means and standard deviations of the dependent variables, including emotional self-regulation and academic achievement motivation, disaggregated by study groups, are presented in Table 2.

Table 2.

Means and Standard Deviations of Self-Regulation and Academic Motivation Scores of the Experimental and Control Groups at Pretest and Posttest Stages

Variable	Group	Pretest Mean	Standard Deviation	Post-test Mean	Standard Deviation
Self-Regulation	Experimental	60.80	7.74	60.92	7.88

Intrinsic Motivation	Control	58.64	8.95	56.68	9.89
	Experimental	55.56	11.72	58.68	10.28
Extrinsic Motivation	Control	50.72	9.22	55.84	10.61
	Experimental	45.24	6.46	93.52	12.29
	Control	46.92	6.89	74.00	16.08

As presented in Table 2, the experimental group showed a slight increase in self-regulation scores from pretest ($M = 60.80$) to posttest ($M = 60.92$), while the control group showed a decline (58.64 to 56.68). For intrinsic motivation, both groups demonstrated increases, but the experimental group exhibited a larger gain (from 55.56 to 58.68) compared to the control group (from 50.72 to 55.84). A notable finding is the substantial increase in extrinsic motivation scores for the experimental group (from 45.24 to 93.52), which was considerably larger than the increase observed in the control group (from 46.92 to 74.00). Overall, the descriptive statistics indicate that the NLP intervention was associated with greater improvements in both intrinsic and extrinsic motivation among the experimental group relative to the control group, while changes in self-regulation were minimal.

To perform the analysis of covariance, its prerequisites were first confirmed, including the presence of an independent variable with two levels (Neuro-Linguistic Programming and control group), measurement of the covariate (pretest) prior to the intervention, and random assignment of participants to groups. Subsequently, the assumptions of analysis of covariance were examined. The assumption of independence of scores was met due to the random assignment of participants to the two groups. Additionally, the Kolmogorov-Smirnov test was used to examine the assumption of normality of data distribution. The results of testing the normality assumption showed that for the emotional self-regulation variable, data distribution was normal for the experimental group at pretest ($Z = 0.11$, $p > .05$) and posttest ($Z = 0.14$, $p > .05$), and for the control group at pretest ($Z = 0.12$, $p > .05$) and posttest ($Z = 0.09$, $p > .05$). Likewise, for the academic motivation variable, data distribution was normal for the experimental group at pretest ($Z = 0.13$, $p > .05$) and posttest ($Z = 0.13$, $p > .05$), and for the control group at pretest ($Z = 0.16$, $p > .05$) and posttest ($Z = 0.09$, $p > .05$). Examination of homogeneity of variances using Levene's test indicated that the assumption of homogeneity of variances was met for the emotion regulation variable ($f = 1.26$, $p > .05$) and for the academic achievement motivation variable ($f = 0.31$, $p > .05$). The results of the univariate analysis of covariance are presented below. The results of the multivariate analysis of covariance of Neuro-Linguistic Programming training on emotional self-regulation and academic motivation of female students are reported in Table 3.

Table 3.

Results of Multivariate Analysis of Covariance of Neuro-Linguistic Programming Training on Emotional Self-Regulation and Academic Motivation of Female Students

Test Name	Value	F	Hypothesis df	Error df	Significance Level	Eta Squared	Test Power
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Pillai's Trace	0.64	25.90	30	43	0.0001	0.54	1
Wilks' Lambda	0.35	25.90	30	43	0.0001	0.54	1
Hotelling's Trace	1.81	25.90	30	43	0.0001	0.54	1
Roy's Largest Root	1.81	25.90	30	43	0.0001	0.54	1

As can be observed in Table 3, the multivariate F value is 25.90, which is statistically significant at the level of 0.05. The results of the multivariate analysis of covariance indicate that Neuro-Linguistic Programming training was effective on female students' emotional self-regulation and academic motivation. To determine the nature of this effect, univariate analysis of covariance was used, the results of which are presented in Table 4.

Results of Univariate Analysis of Covariance for Examining the Effect of Neuro-Linguistic Programming Training on Emotional Self-Regulation and Academic Motivation of Female Students

Variable	Sum of Squares	df	Mean Square	F	Significance Level	Eta Squared	Test Power
Emotional Self-Regulation	49.25	1	49.25	2.84	0.09	0.06	0.38
Intrinsic Motivation	5.36	1	5.36	0.16	0.69	0.003	0.07
Extrinsic Motivation	3107.36	1	3107.36	23.09	0.0001	0.33	

Table 4 presents the results of univariate analysis of covariance examining the effects of NLP training on emotional self-regulation and academic motivation dimensions. The findings revealed that NLP training had a non-significant effect on emotional self-regulation ($F = 2.84$, $p = 0.09$), with a small effect size ($\eta^2 = 0.06$) and low statistical power (0.38). Regarding academic motivation dimensions, the intervention showed no significant effect on intrinsic motivation ($F = 0.16$, $p = 0.69$, $\eta^2 = 0.003$, power = 0.07). However, a significant effect was observed for extrinsic motivation ($F = 23.09$, $p < 0.001$), with a moderate-to-large effect size ($\eta^2 = 0.33$) and excellent statistical power (1.00). These findings indicate that NLP training effectively enhanced extrinsic motivation but did not significantly influence emotional self-regulation or intrinsic motivation.

Discussion

The present study aimed to investigate the effectiveness of Neuro-Linguistic Programming training on emotional self-regulation and academic motivation of female

junior high school students. The findings indicated that Neuro-Linguistic Programming training had a significant effect on students' academic motivation and was able to increase the scores of the experimental group compared to the control group on the components of intrinsic motivation, extrinsic motivation, and total academic motivation score. In contrast, the results showed that this intervention did not have a significant effect on students' emotional self-regulation. In interpreting these findings, it can be argued that Neuro-Linguistic Programming, as an intervention approach focusing on modifying mental patterns and cognitive restructuring through language and mental imagery, primarily affects cognitive and motivational variables rather than deep, automatic emotional processes rooted in subcortical brain structures. In other words, this approach has been effective in improving academic motivation, which is cognitive-evaluative in nature.

This finding was somewhat unexpected, as the initial theoretical framework of the study, grounded in the premises of NLP, suggested that this approach could potentially influence both cognitive-motivational and emotional variables. However, the obtained results indicate that while NLP training effectively enhanced academic motivation-which is largely cognitive-evaluative in nature-it failed to produce a significant change in emotional self-regulation. This discrepancy may be attributed to the deeper neurobiological and automatic nature of emotional regulation processes, which likely require more prolonged and intensive interventions beyond the 12-session protocol employed in this study. Nevertheless, this unexpected finding is acknowledged and discussed below as an important contribution to the existing literature.

The findings of the present study regarding the positive effect of Neuro-Linguistic Programming on academic motivation are consistent with the results of previous studies. Sturtivant and Cox (2018), in their review study, showed that training in Neuro-Linguistic Programming techniques in organizational and educational settings can improve self-efficacy and achievement motivation. Tosey and Mathison (2009), in their systematic review, also reported evidence for the effectiveness of this approach in the domains of communication and learning. Domestically, Shaker and Obalasi (2018) demonstrated that training in Neuro-Linguistic Programming strategies had a significant effect on teachers' emotional intelligence and critical thinking. However, the finding of the present study regarding the lack of effect of this intervention on emotional self-regulation appears inconsistent with those previous studies that focused on emotional intelligence, of which emotional self-regulation is a component. An explanation for this finding is provided below.

Several factors may explain the lack of a significant effect of Neuro-Linguistic Programming on female students' emotional self-regulation. First, according to Gross's (1998) process model, emotional self-regulation involves five intervention points: situation selection, situation modification, attentional deployment, cognitive change, and response modulation. Among these five strategies, Neuro-Linguistic Programming primarily focuses on the cognitive change strategy (through techniques such as reframing) and, to some extent, on attentional deployment (through techniques such as anchoring). However, the most effective emotional self-regulation strategies, particularly in intense emotional situations, involve antecedent-focused and automatic strategies rooted in

subcortical processes. de Jesús Gómez and Cornu-Labat (2024) have shown that cognitive reappraisal, as an antecedent-focused strategy, requires prolonged and gradual practice that may not reach an automatic level within a 12-session NLP protocol. Second, according to the perspective of Martin and Ochsner (2016), adolescence is characterized by asynchronous development between the limbic system (emotional center) and the prefrontal cortex (cognitive control center), rendering adolescents prone to intense and impulsive emotional reactions. Under such circumstances, modifying emotional patterns requires deeper and more long-term interventions.

A third explanation for the lack of effect of Neuro-Linguistic Programming on emotional self-regulation relates to the nature of the construct of emotional self-regulation itself and its distinction from variables such as emotional intelligence.. Johnston et al. (2025) have pointed out that emotional self-regulation, particularly in high-stress situations, requires considerable repetition and practice to reach an automatic level. In the 12-session protocol of this study, students did not have sufficient opportunity to practice emotion regulation techniques in real, high-stress situations outside the sessions. Harley et al. (2019) have also shown that changing emotional self-regulation in adolescents requires longer interventions and a combination with other approaches such as mindfulness. Furthermore, Wong et al. (2023) and Romo et al. (2025) have emphasized that emotional self-regulation is also influenced by contextual and environmental factors such as family climate and peer relationships.

In explaining the positive and significant effect of Neuro-Linguistic Programming on female students' academic motivation, several factors can be noted. First, according to Wigfield's (1994) expectancy-value theory, academic achievement motivation is a function of two types of beliefs: expectancy beliefs (an individual's judgment of their abilities) and value beliefs (the importance, intrinsic enjoyment, utility, and perceived costs of a task). Neuro-Linguistic Programming, through techniques such as modeling and reframing, has a direct effect on expectancy beliefs. Modeling helps students observe and internalize the successful behaviors of others, thereby enhancing their self-efficacy beliefs (Looti, 2025). Reframing also helps them change their interpretation of challenging academic situations, viewing them as opportunities for learning rather than threats to self-esteem. Second, Neuro-Linguistic Programming, through the anchoring technique (Ready & Burton, 2025), can create links between academic stimuli (such as studying or attending class) and positive emotional states. This process gradually causes the student to associate academic activities with pleasant feelings, thereby increasing the intrinsic enjoyment (the value dimension) of learning.

A third explanation for the effect of Neuro-Linguistic Programming on academic motivation is the connection of this approach with self-determination theory (Deci & Ryan, 2012). According to this theory, satisfaction of the three basic psychological needs autonomy, competence, and relatedness leads to the formation of intrinsic motivation. Neuro-Linguistic Programming, through the SMART goal-setting technique (Looti, 2025), helps students set specific, measurable, and achievable goals for themselves, which enhances their sense of autonomy. Modeling techniques and reinforcement of self-efficacy beliefs (Sturtivant & Cox, 2018) also strengthen students' sense of competence. Furthermore, rapport-building and intimacy-creating techniques (Archana &

Kannadasan, 2024) satisfy the need for relatedness by improving students' interpersonal relationships with teachers and peers. Regarding extrinsic motivation, the anchoring technique can create links between academic activities and positive external outcomes such as social approval, good grades, and acceptance by parents. According to Ready and Burton (2025), anchoring helps individuals associate specific stimuli (such as starting to study) with positive emotional states linked to external outcomes. Grinder (2013) also noted that Neuro-Linguistic Programming, by changing mental maps, helps individuals place greater value on their long-term goals.

Conclusion

Based on the findings of the present study, school counselors and educational psychologists are advised to use the Neuro-Linguistic Programming training package to increase students' academic motivation, particularly for female junior high school students who experience declining academic motivation. Teachers are also encouraged to employ simple Neuro-Linguistic Programming techniques such as SMART goal setting, reframing, and positive anchoring in their teaching processes. Parents are advised to use the principles of rapport building and intimacy creation to establish more effective communication with their adolescents and to provide the conditions for enhancing their children's intrinsic interest in learning. Given the lack of effect of this approach on emotional self-regulation, it is recommended that complementary approaches such as mindfulness training or emotion-focused cognitive-behavioral therapy be used to improve this construct.

Limitations: The present study faced several limitations. First, the use of convenience sampling limits the generalizability of the results. It is recommended that future studies employ stratified random sampling methods. Second, the absence of a follow-up stage precluded assessment of the stability of the intervention effects.

Suggestions: It is recommended that future research be conducted using pretest-posttest-follow-up designs. Third, the intervention protocol consisted of only 12 sessions, which may be insufficient to produce lasting change in emotional self-regulation. It is suggested that subsequent studies use a greater number of sessions or combine NLP with other approaches such as mindfulness. Fourth, the study population was limited to female students at a single school in Qazvin. It is recommended that future studies be conducted with male students and in different geographical regions to enhance the generalizability of the findings.

Ethical Considerations: Strict adherence to ethical considerations was observed throughout all stages of the research. These considerations included obtaining informed consent from students and their parents to participate in the study, maintaining the confidentiality of the collected information and preventing unauthorized access to raw data, respecting the right to anonymity of the questionnaires and the confidentiality of respondents (using codes instead of names), explaining that participation was entirely voluntary and that withdrawal was possible at any stage, and avoiding any scoring or judgment regarding individual responses.

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