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Predicting Body Image Concern Based on Cognitive Reappraisal: Mediating Role of Experiential Avoidance

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ABSTRACT

Objective: The present study aimed to predict body image concern based on cognitive reappraisal, with the mediating role of experiential avoidance among female secondary school students.

Methods: This study was an applied, quantitative research conducted using a survey (cross-sectional) design. The statistical population consisted of female students enrolled in secondary schools during the 2024 academic year in Karaj, Iran. Using SPSS Sample Power software, a sample of 357 students was determined and selected through multistage cluster sampling. Data were collected using three standardized instruments: the Body Image Concern Questionnaire, the Emotion Regulation Questionnaire (cognitive reappraisal subscale), and the Acceptance and Action Questionnaire (experiential avoidance). Data analysis was performed using SPSS for descriptive statistics and AMOS for structural equation modeling. The reliability of the instruments was confirmed using Cronbach's alpha coefficients for cognitive reappraisal ($\alpha = 0.72$), experiential avoidance ($\alpha = 0.75$), and body image concern ($\alpha = 0.77$).

Results: Structural equation modeling indicated that cognitive reappraisal had a significant effect on body image concern. Experiential avoidance played a partial mediating role in the relationship between cognitive reappraisal and body image concern, suggesting that higher use of cognitive reappraisal was associated with lower experiential avoidance, which in turn reduced body image concerns.

Conclusions: The findings highlight the importance of adaptive emotion regulation strategies in reducing body image concerns among adolescent girls. Interventions aimed at enhancing cognitive reappraisal skills and reducing experiential avoidance may be effective in improving adolescents' psychological well-being and body image.

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Introduction

During adolescence, advanced cognitive development—such as abstract thinking and self-reflection—enhances the capacity to *imagine how one is perceived by others*. This developmental shift increases vulnerability to idealized standards and negative evaluations (Casey et al., 2025; Chacko & Davis-Kean, 2024; Lee et al., 2022). The convergence of pubertal physical changes and cognitive maturation heightens adolescents' sensitivity to discrepancies between the *actual self* and the *ideal self*. This perceived gap is considered a primary driver of body dissatisfaction and behaviors aimed at altering one's body (Haki et al., 2021; Roberts et al., 2024; Zheng et al., 2022). Meta-analyses and systematic reviews of age- and gender-related patterns emphasize that biological maturation (e.g., increases in body mass index or changes in body proportions), together with cultural and peer pressures, shapes the developmental trajectory of body image (Linardon et al., 2021; Zanlorenzi et al., 2024). For example, early pubertal timing in girls has been associated with greater risk of body dissatisfaction, engagement in weight-control behaviors, depressive symptoms (Gualdi-Russo et al., 2022), and increased vulnerability to disordered eating behaviors (Taseli et al., 2021).

Within the domain of body image, research indicates that difficulties in emotion regulation—such as emotional nonacceptance, limited access to adaptive regulatory strategies, and emotion dysregulation—are associated with body dissatisfaction, emotional eating, and weight-control behaviors (McComb & Mills, 2021; Zarehouni et al., 2022; Morin et al., 2024). Moreover, empirical and intervention-based studies suggest that interventions incorporating cognitive reappraisal can produce immediate reductions in body dissatisfaction, a pattern also observed among adolescent samples (Prefit et al., 2020; Huron & Weinbach, 2024). These findings underscore the importance of targeting emotion regulation skills to prevent the chronicity of body image concerns (Lechse et al., 2025).

Within emotion regulation frameworks, cognitive reappraisal is defined as an *antecedent-focused* strategy whereby individuals modify the emotional impact of a situation by reinterpreting its meaning (Gross & Ford, 2024; Petrova & Gross, 2023). According to the process model of emotion regulation, reappraisal occurs prior to the full activation of physiological and behavioral responses and can therefore alter the emotional trajectory at an early stage (Kozoobal et al., 2023; Gross, 2024). Meta-analytic evidence suggests that, compared to strategies such as suppression, cognitive

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reappraisal is generally associated with more adaptive emotional and functional outcomes, although effect sizes vary depending on research objectives, outcome indicators, and sample characteristics (Wu et al., 2024). A greater tendency to use reappraisal has been linked to better mental health and higher life satisfaction, and in some domains, it appears to exert a protective effect against symptoms of anxiety, depression, and body image–related concerns (Cui et al., 2024; Morello et al., 2023). Nevertheless, prior research cautions that the effectiveness of cognitive reappraisal may be influenced by processes such as experiential avoidance, highlighting the need to examine mediating or moderating pathways (Coxon et al., 2020; Zucchelli et al., 2020; Fang et al., 2022).

Experiential avoidance is classically defined as persistent efforts to avoid, suppress, or control unpleasant internal experiences—including thoughts, emotions, mental images, memories, and bodily sensations—even when such efforts result in negative functional consequences (Hoffman & Hayes, 2019). Systematic reviews and meta-analyses indicate that experiential avoidance functions both as a predictor of psychopathology (Cao et al., 2024) and as a mediator of psychological difficulties (Felix et al., 2023). It has been linked to a wide range of disorders, including depression, anxiety, obsessive–compulsive disorder, post-traumatic stress disorder (Akbari et al., 2022), maladaptive eating behaviors (Peschel et al., 2023), depression (Kainonen et al., 2021; Shi et al., 2024), anxiety (Zemestani et al., 2022), social anxiety (Cheng et al., 2022), and problem behaviors (Xiong et al., 2023; Shi et al., 2024). As such, experiential avoidance is increasingly conceptualized as a transdiagnostic process (Akbari et al., 2022).

In the context of body image and eating disorders, experiential avoidance has been associated with negative body self-concept, emotional overeating, disordered eating behaviors, and maladaptive coping strategies (Donahoo et al., 2023; Zucchelli et al., 2020). From a process-oriented perspective, body dissatisfaction is often accompanied by emotions such as shame, and attempts to eliminate or control these internal experiences may trigger cycles of compensatory behaviors (e.g., restrictive dieting, excessive exercise, purging), thereby maintaining body image concerns over time (Gulakan et al., 2025; Peschel et al., 2023). Modeling studies further suggest that experiential avoidance plays a critical mediating role between cognitive–emotional processes and body image–related outcomes (Zucchelli et al., 2020; Donahoo et al., 2023; Peschel et al., 2023).

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Accordingly, conceptualizing a model in which cognitive reappraisal predicts body image concern, with experiential avoidance functioning as a mediating mechanism, is consistent with both emotion regulation literature and the Acceptance and Commitment Therapy (ACT) framework. Specifically, lower levels of cognitive reappraisal combined with higher levels of experiential avoidance may reinforce cognitive–emotional pathways that sustain body image concerns. Therefore, mediation models appear well suited to explaining individual differences in this domain. The present study thus aimed to predict body image concern based on cognitive reappraisal, with the mediating role of experiential avoidance during adolescence, emphasizing the importance of identifying modifiable cognitive–emotional mechanisms at this critical developmental stage.

Material and Methods

Based on the study objective, the present research is classified as applied research. With respect to the time frame of data collection, it is a cross-sectional survey study. In terms of the nature of the data and the research paradigm, the study is quantitative. According to the characteristics of the research problem, it is a correlational (associational) study. Based on the type of data, the study relies on primary data, and with regard to the method of data collection, it is a field study conducted using the questionnaire technique. Finally, in terms of depth of inquiry, the study is considered extensive (broad-based).

The primary instruments used for data collection in this study were three questionnaires: the Body Image Concern Questionnaire, the Emotion Regulation Questionnaire, and the Acceptance and Action Questionnaire–II.

Instruments

Body Image Concern Questionnaire (BICQ): Body image concern was assessed using the Body Image Concern Questionnaire developed by Littleton et al. (2005), which evaluates concerns related to physical appearance and their impact on daily functioning. The questionnaire consists of 19 items, and factor analysis has identified two factors: *appearance dissatisfaction* and *interference with social functioning* (Littleton et al., 2005). Responses are rated on a five-point Likert scale ranging from 1 (*never*) to 5 (*always*). Total scores range from 19 to 95, with higher scores indicating greater body image concern. In the original study, the instrument was

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administered across several student samples (four studies with sample sizes of 184, 200, 56, and 40 participants). In one study, clinical samples (body dysmorphic disorder and bulimia) were used to establish discriminant validity, and the results demonstrated the questionnaire's ability to distinguish between clinical and non-clinical groups. Internal consistency reliability in the original study was reported as $\alpha = .93$ (Littleton et al., 2005), and subsequent studies have reported Cronbach's alpha coefficients ranging from .85 to .94 (Littleton & Breitkopf, 2008; Luca et al., 2011; Tanaka et al., 2015). In Iran, Mohammadi and Sajadinejad (2007) reported an overall Cronbach's alpha of .84, with alpha coefficients of .84 for appearance dissatisfaction and .74 for social functioning interference. Similarly, Heidari and Alipour Khodadadi (2012) obtained an overall alpha of .86, with .84 for appearance dissatisfaction and .71 for functional interference, and reported convergent validity coefficients of .62 with the Padua Obsessive–Compulsive Inventory and .40 with an eating disorders questionnaire ($p < .01$). In line with the objectives of the present study and consistent with prior research (Littleton & Breitkopf, 2008), only the total score was used as an overall index of body image concern, and subscale scores were not analyzed.

Emotion Regulation Questionnaire (ERQ): Cognitive reappraisal was measured using the Emotion Regulation Questionnaire (ERQ) developed by Gross and John (2003). This instrument assesses individual differences in two emotion regulation strategies: cognitive reappraisal and expressive suppression. In the original validation study, two independent factors were identified, and Cronbach's alpha coefficients of .79 for cognitive reappraisal and .73 for suppression were reported. Test–retest reliability over a three-month interval was .69, and evidence for construct and convergent validity with emotional indices and life satisfaction was confirmed (Gross & John, 2003). The Persian version of the ERQ was translated and validated by Foroughi et al. (2021) in a sample of 348 university students (178 women and 170 men). Exploratory factor analysis confirmed the two-factor structure, and Cronbach's alpha coefficients of .76 for cognitive reappraisal and .72 for suppression were reported. Additionally, Hosseini and Khayer (2010) reported a Cronbach's alpha of .79 for the cognitive reappraisal subscale. The ERQ consists of 10 items rated on a 7-point Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Items 1, 3, 5, 7, 8, and 10 assess cognitive reappraisal, while items 2, 4, 6, and 9 assess suppression. In the present study, in accordance with the research objectives, only the cognitive reappraisal

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subscale was used in the analyses, and the suppression subscale was excluded. Cognitive reappraisal scores were calculated by summing the six relevant items (range 6–42), with higher scores indicating greater use of cognitive reappraisal.

Acceptance and Action Questionnaire–II (AAQ-II): Experiential avoidance was measured using the Acceptance and Action Questionnaire–II (AAQ-II) developed by Bond et al. (2011). Initial data for this scale were collected from several large samples totaling approximately 2,800 participants, including both clinical and non-clinical populations. Evidence supporting the factorial structure, reliability, and construct validity of the instrument was reported (Bond et al., 2011). In Iran, Abbasi et al. (2012) evaluated the psychometric properties of the Persian version across three stages using student, community, and clinical samples (major depression and generalized anxiety disorder). Factor analysis identified two factors—*experiential avoidance* and *life control*—and the instrument demonstrated adequate discrimination between clinical and non-clinical groups. Results from six samples comprising 2,816 participants showed a mean Cronbach's alpha of .84 (range .78–.88) and test–retest reliability coefficients of .81 and .79 over 3- and 12-month intervals, respectively. The questionnaire also demonstrated predictive validity across a range of outcomes, from mental health to work absenteeism, and exhibited satisfactory discriminant validity. Internal consistency and split-half reliability were also reported as acceptable (.71–.89). Experiential avoidance was found to be significantly associated with symptoms of depression and anxiety, difficulties in emotion regulation, and distress indices on the mental health questionnaire. The version used in the present study consisted of 10 items rated on a 7-point Likert scale ranging from 1 (*never true*) to 7 (*always true*). Items 1, 6, and 10 are reverse-scored. Total scores range from 10 to 70, with higher scores indicating greater experiential avoidance.

Data Analysis

Data analysis was conducted using SPSS and AMOS statistical software packages, including structural equation modeling (SEM). Sample size estimation was performed using SPSS Sample Power software. The reliability of the instruments in the present study was confirmed using Cronbach's alpha coefficients: .77 for body image concern, .72 for cognitive reappraisal, and .75 for experiential avoidance.

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Population and Sample

The statistical population consisted of female secondary school students in Karaj City during the 2024 academic year. Based on sample size estimation conducted using SPSS Sample Power and five assumptions—maximum Type I error probability of 5% (α), maximum Type II error probability of 20% (β), sufficient sample size to detect at least 3% of the coefficient of determination (R^2) in the population, statistical power of 80%, and a 95% confidence level—the required sample size was determined to be 357 participants. A multistage cluster sampling method was employed.

To examine the presence or absence of effects among variables and to estimate and generalize the findings from the sample to the population, a mediation model with observed variables was used to evaluate the conceptual model of the study.

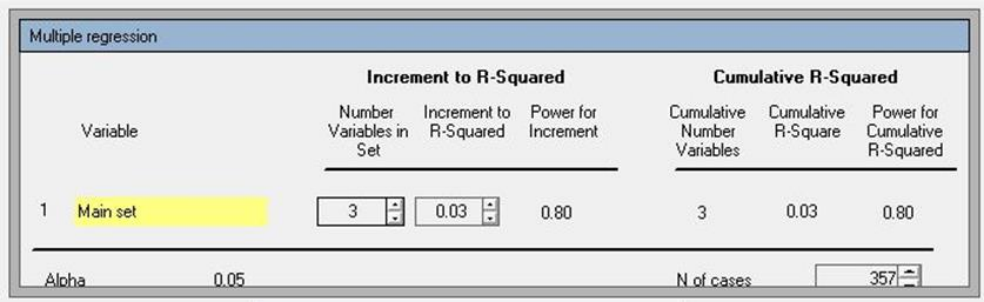


Figure 1. Output of the initial sample size estimation using SPSS Sample Power

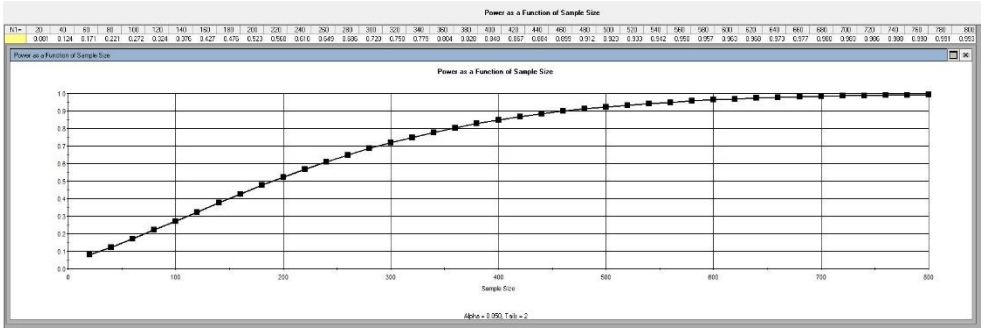


Figure 2. Graph of the initial sample size estimation using SPSS Sample Power

Ethical Considerations

Several measures were taken to ensure ethical compliance in this study, including:

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1. Participants were assured that their information would remain confidential.
2. Academic integrity and proper citation practices were observed, with avoidance of unreliable or non-credible sources.
3. Participation in the study was entirely voluntary.
4. Participants were free to withdraw from the study (questionnaire completion) at any time.
5. The researcher-maintained neutrality and avoided personal bias, while respecting individuals and the community during discussion and interpretation.
6. The most up-to-date research methods were employed to ensure that the findings could contribute to future research and planning efforts.
7. Honesty was maintained during data analysis, and no data distortion occurred.

Results

The frequency distribution of respondents' gender indicates that all participants were female students**.** The age distribution shows that 88 participants (24.6%) were 16 years old**,** 169 participants (47.3%) were 17 years old**,** and 100 participants (28.0%) reported being 18 years old**.** Regarding grade level**,** 88 participants (24.6%) were enrolled in Grade 10**,** 169 participants (47.3%) in Grade 11**,** and 100 participants (28.0%) in Grade 12**.**

The distribution of academic major revealed that 52 students (14.6%) were enrolled in Mathematics–Physics**,** 65 students (18.2%) in Experimental Sciences**,** 81 students (22.7%) in Humanities**,** 62 students (17.4%) in Islamic Sciences**,** 49 students (13.7%) in Technical–Vocational programs**,** and 48 students (13.4%) in Work and Knowledge programs**.**

Table 1 .Frequency Distribution of Respondents by Demographic Variables

Variable	Category	Frequency	Percentage
Gender	Male student	—	—
	Female student	357	100
Age	16 years	88	24.6
	17 years	169	47.3
	18 years	100	28.0
Grade level	Grade 10	88	24.6
	Grade 11	169	47.3
	Grade 12	100	28.0
Academic major	Mathematics–Physics	52	14.6
	Experimental Sciences	65	18.2
	Humanities	81	22.7
	Islamic Sciences	62	17.4
	Technical–Vocational	49	13.7
	Work and Knowledge	48	13.4

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The mean score for Body Image Concern (BIC) was 61.10 (SD = 4.94), with scores ranging from 29 to 65. This mean was higher than the population midpoint (57).

The mean score for Cognitive Reappraisal (CR) was 22.85 (SD = 3.25), with a minimum of 18 and a maximum of 35, which was below the population midpoint (24).

The mean score for Experiential Avoidance (EA) was 43.19 (SD = 2.87), ranging from 26 to 50, which was above the population midpoint (40).

For all study variables, the ratios of skewness to standard error and kurtosis to standard error fell within the range of –2 to +2, indicating that all variables followed a normal and symmetric distribution.

Table 2. Descriptive Statistics and Normality Indices of Study Variables

Variable	Mean	SD	Minimum	Maximum
Body Image Concern	61.10	4.94	29	65
Cognitive Reappraisal	22.85	3.25	18	35
Experiential Avoidance	43.19	2.87	26	50
Variable	Skewness	SE	Kurtosis	SE
Body Image Concern	0.26	0.18	−0.48	0.25
Cognitive Reappraisal	0.05	0.12	−0.32	0.25
Experiential Avoidance	0.40	0.32	−0.42	0.35

The purpose of the proposed model was to examine the effect of Cognitive Reappraisal (CR) on Body Image Concern (BIC) with the mediating role of Experiential Avoidance (EA) among female secondary school students. In this model, CR was specified as the independent variable, BIC as the dependent variable, and EA as the mediator.

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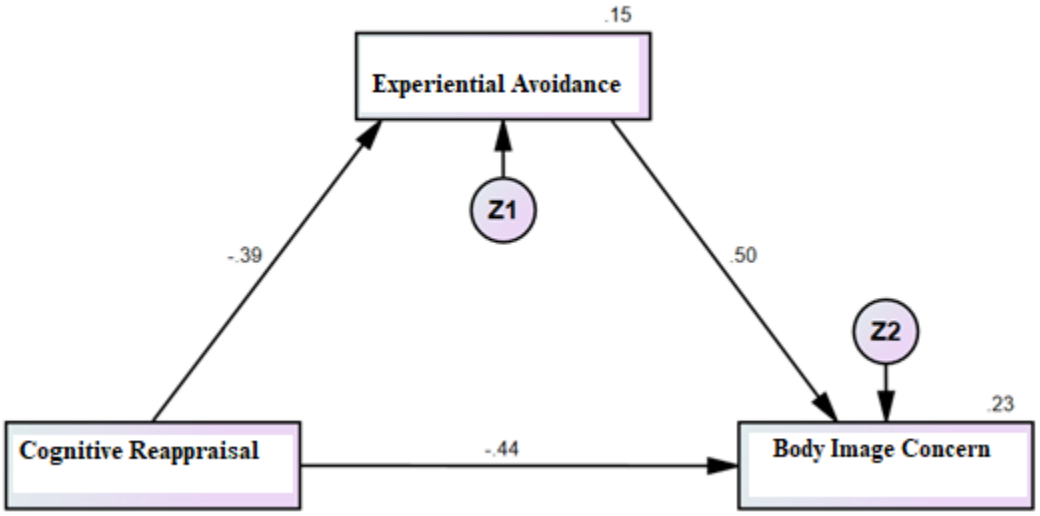


Figure 3. Mediation model with observed variables for evaluating the overall research model

Table 3. Results of Hypothesis Testing: Direct and Indirect Effects

Research hypothesis	Direct effect	Indirect effect	C.R.	Sig.
Effect of CR on BIC	−0.44	0.20	6.08	0.0001
Effect of CR on EA	−0.39	—	5.80	0.0001
Effect of EA on BIC	0.50	—	6.30	0.0001

Table 4. Significance Levels of Direct and Indirect Effects Using Bootstrap Test

Path	Direct effect (p)	Indirect effect (p)
Effect of CR on BIC	0.0001	0.01

Based on the standardized regression weights obtained from the model, the direct effect of cognitive reappraisal on body image concern was negative and statistically significant ($\beta = -0.44$, C.R. = 6.08 > 1.96, $p = 0.0001 < 0.05$). In addition, the indirect effect of cognitive reappraisal on body image concern through experiential avoidance was also significant ($p = 0.01 < 0.05$).

The direct effect of cognitive reappraisal on experiential avoidance was negative and significant ($\beta = -0.39$, C.R. = 5.80 > 1.96, $p = 0.0001 < 0.05$), while the direct effect of experiential avoidance on body image concern was positive and significant ($\beta = 0.50$, C.R. = 6.30 > 1.96, $p = 0.0001 < 0.05$).

From a conceptual perspective, mediation in structural equation modeling involves two key components: direct effects and indirect effects. If the direct effect is significant but the indirect

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effect is not, mediation is not supported. If the direct effect is not significant while the indirect effect is significant, full mediation is present. When both direct and indirect effects are significant, partial mediation is supported.

Table 5. Overall Model Fit Indices

Fit index category	Index	Recommended value	Obtained value	Model status
Absolute fit indices	CMIN/DF	< 5	4.11	Acceptable; no modification required
	RMSEA	< 0.08	0.07	
Incremental fit indices	CFI	> 0.90	0.91	
	TLI	> 0.90	0.92	
Parsimonious fit indices	PCFI	> 0.50	0.52	
	PNFI	> 0.50	0.51	

Based on the bootstrap results and mediation principles in SEM, because both the direct and indirect effects of cognitive reappraisal on body image concern were significant, experiential avoidance plays a partial mediating role in this relationship. Therefore, the proposed model—suggesting that experiential avoidance mediates the effect of cognitive reappraisal (CR) on body image concern (BIC)—is supported. Following estimation of the structural model, model fit indices were evaluated. The results indicate that both absolute fit indices (CMIN/DF, RMSEA) and incremental and parsimonious fit indices (CFI, TLI, PCFI, PNFI) were within acceptable and standard ranges. Consequently, the proposed model demonstrates adequate fit and does not require modification.

Discussion

The findings of the present study indicate that cognitive reappraisal significantly predicts body image concern, such that higher levels of cognitive reappraisal among students are associated with lower reported body image concern. In addition, experiential avoidance was positively associated with body image concern and played a partial mediating role in the relationship between cognitive reappraisal and body image concern. This pattern suggests that part of the protective effect of cognitive reappraisal operates through a reduction in experiential avoidance, while a direct pathway from cognitive reappraisal to body image concern remains intact.

From a developmental perspective, this pattern is theoretically expected. Adolescence is characterized by the maturation of advanced cognitive capacities, including abstract thinking and

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self-reflection, alongside heightened sensitivity to others' evaluations. These changes increase adolescents' vulnerability to idealized standards and negative social judgments (Casey et al., 2025; Chaku & Davis-Kean, 2024; Lee et al., 2022). Concurrent physical maturation further accentuates the perceived discrepancy between the "actual self" and the "ideal self," thereby intensifying body-related concerns (Roberts et al., 2024; Zheng et al., 2022). Consequently, the relatively high mean level of body image concern observed in the present sample can be meaningfully interpreted within the developmental literature on adolescence and body image.

Within the process model of emotion regulation, cognitive reappraisal is conceptualized as an antecedent-focused strategy that modifies emotional trajectories by reinterpreting the meaning of a situation before physiological or behavioral responses are fully established (Gross, 2024; Gross & Ford, 2024; Petrova & Gross, 2023). From this viewpoint, adolescents who possess greater capacity or tendency to reframe appearance-related situations—such as social comparison, peer feedback, or perceptual distortions about the body—are likely to experience lower levels of shame, anxiety, and emotional distress, which in turn reduces body image concern. This interpretation is consistent with prior studies demonstrating that difficulties in emotion regulation are associated with body dissatisfaction and body image concerns (McComb & Mills, 2021; Zarehouni et al., 2022; Morin et al., 2024). It is also aligned with intervention evidence indicating that the use of cognitive reappraisal can produce immediate reductions in body dissatisfaction (Perrifit et al., 2020) and facilitate recovery of body satisfaction following appearance-related rumination (Horan & Weinbach, 2024).

Statistically, the present study revealed a significant and moderately strong negative direct effect of cognitive reappraisal on body image concern. This finding converges with meta-analytic evidence suggesting that cognitive reappraisal is generally associated with more adaptive emotional outcomes and better mental health (Wu et al., 2024; Cui et al., 2024). Accordingly, the current data support the notion that cognitive reappraisal may serve a protective function during adolescence in relation to body-related concerns.

Furthermore, cognitive reappraisal was negatively associated with experiential avoidance, while experiential avoidance positively predicted body image concern. This pattern is theoretically coherent. Cognitive reappraisal typically enables individuals to reinterpret events, thoughts, or emotions as more tolerable and comprehensible, thereby reducing the perceived need for rigid

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control over internal experiences. In contrast, elevated experiential avoidance prevents emotions such as body-related shame or social anxiety from being processed or accepted. Instead, individuals may engage in maladaptive cycles, including avoidance of social situations, excessive appearance checking, restrictive dieting, or other control-oriented behaviors—cycles that can perpetuate and intensify body image concern (Peschel et al., 2023; Gholakan et al., 2025). Consistent with prior mediation models, experiential avoidance has been shown to mediate the relationships between cognitive or emotional processes and body-related outcomes (Zoccelli et al., 2020; Donahue et al., 2023).

Given that the sample consisted of female secondary school students, and that mean levels of cognitive reappraisal were lower while experiential avoidance levels were higher than population midpoints, the development of school-based interventions appears particularly warranted. From a process-based therapeutic perspective, integrating cognitive reappraisal training with strategies aimed at reducing experiential avoidance—such as acceptance, cognitive defusion, and values-based action—is consistent with contemporary intervention frameworks (Hofmann & Hayes, 2019). Intervention studies further suggest that emotion regulation–based educational programs can improve body image and eating patterns among adolescents (Lechase et al., 2025), and preliminary evidence supports the effectiveness of Acceptance and Commitment Therapy (ACT)–based interventions for Iranian adolescent girls (Zemestani et al., 2022). Additionally, experimental findings demonstrating the impact of cognitive reappraisal on reducing body dissatisfaction (Perrifit et al., 2020) indicate that incorporating this skill into school-based curricula may represent a cost-effective and feasible starting point for prevention efforts.

Several limitations should be acknowledged. This study employed a cross-sectional survey design and relied on self-report measures; therefore, causal inferences should be made with caution. Future research would benefit from longitudinal designs to more precisely examine the directionality of relationships. The use of methods such as ecological momentary assessment (EMA) could also help capture daily fluctuations in experiential avoidance and body image–related behaviors. Moreover, future studies should include more diverse samples (e.g., students from other cities, male adolescents, and broader age ranges), as gender, age, and cultural context play prominent roles in body image development. Incorporating contextual variables—such as

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body mass indices, pubertal timing, social media use, and internalization of appearance ideals—as moderators or additional mediators may further enrich explanatory models.

In conclusion, the findings indicate that among female secondary school students, cognitive reappraisal is associated with reduced body image concern, while experiential avoidance both directly increases body image concern and partially mediates the relationship between cognitive reappraisal and body image concern. Theoretically, these results are consistent with the process model of emotion regulation and the psychological flexibility framework. Practically, they suggest that preventive programs and school-based interventions should simultaneously focus on strengthening cognitive reappraisal skills and reducing experiential avoidance in order to weaken the cognitive–emotional pathways that maintain body image concerns during this sensitive developmental period.

Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

Ethics statement

The studies involving human participants were reviewed and approved by ethics committee of Islamic Azad University.

Author contributions

All authors contributed to the study conception and design, material preparation, data collection and analysis. All authors contributed to the article and approved the submitted version.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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