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Psychometric Indicators of Emotional Self-Regulation Strategies Questionnaire among Secondary School Students in Shiraz

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ABSTRACT

Objective: The objective of this study was to assess and modify the validity and reliability indices of the March Emotional Self-Regulation Strategies Questionnaire for high school students in Shiraz.

Methods: The participants comprised 200 male and female secondary school students selected via convenience sampling during the 2021-2022 academic year. The primary research instrument was a 44-item questionnaire developed by Larsen and Pris, focusing on emotional self-regulation strategies.

Results: The factor structure of the instrument was subsequently validated through factor analysis. The reliability coefficients for the subscales ranged from 0.68 to 0.83, determined by Cronbach's alpha method.

Conclusions: Overall, the findings indicate that the Emotional Self-Regulation Questionnaire is effective in assessing this construct and its dimensions among high school students in Shiraz, addressing their evaluative needs.

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Introduction

Emotional self-regulation constitutes a distinctive variant of self-regulation that holds significant importance for the mental well-being of high school students (Alarcón-Espinoza et al., 2022). Within the domain of emotional self-regulation, individuals critically assess their behaviors, and if such behaviors align with their established standards, they are deemed positive and conducive to happiness; conversely, if these actions diverge from the prescribed standards, individuals endeavor to amend their behaviors in pursuit of conformity to these standards, subsequently re-evaluating to ascertain whether they have successfully diminished or eradicated the discrepancy between their behaviors and the established standards (Kazemi & Kazempoor Dehbidi, 2022).

Samavi et al. (2020) posit that self-regulation is a pivotal element in the advancement of educational and training objectives, thereby introducing it as a prerequisite for fostering a productive educational milieu. There exists a plethora of divergent perspectives regarding the definition and explication of self-regulated learning. Zimmerman (1995) characterizes self-regulated learning as a dynamic process whereby learners consistently initiate and sustain their cognitive activities in pursuit of their educational objectives.

Furthermore, self-regulated learning has been recognized as a contributing factor to the enhancement of computational skills and perseverance in task completion. According to Pintrich (2004), self-regulation is delineated as an active and systematic process through which learners articulate their learning objectives and endeavor to monitor their cognitive processes, motivational states, and behavioral patterns. The strategies associated with self-regulated learning encompass self-study techniques, self-questioning, self-review, and self-enhancement, all of which serve to facilitate the learning experience by leveraging cognitive processes. Zimmerman (2000) articulates self-regulated learning as the beliefs held by learners regarding their capacity to engage in actions, thoughts, and emotions while striving for esteemed academic aspirations. Self-regulated learning encompasses the student's acquisition of skills necessary to design, manage, and direct their learning trajectory, alongside a willingness to learn and an ability to assess and reflect upon their comprehensive learning journey (Zare et al., 2018). Crippen et al. (2005) define self-regulated learning as the capability of students to comprehend and govern their learning processes, a quality that is essential for success in the academic curriculum and promotes their efficacy as learners. In light of the aforementioned definitions, it can be inferred that the strategy of self-regulated learning

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aims to educate students on the notion that their behaviors are amenable to learning, enabling them to scrutinize their behavioral impacts and structure their learning environments in a manner that enhances the productivity of their behaviors and efforts. Strongman (2007) has identified five distinct categories of emotional processes. According to his perspective, individuals exercise regulation over their emotions by selecting specific situations, either approaching or distancing themselves from individuals, locations, or objects that elicit pleasurable or distressing emotional experiences; during the process of situation modification, individuals concentrate on the stimuli that engender negative emotional experiences and endeavor to alter these stimuli to suit their preferences; through the process of altering attention, individuals redirect their focus towards alternative stimuli, effectively distracting themselves from the original situation or stimulus that provoked the emotional response; by means of changing cognition, individuals reassess their evaluations of certain stimuli to mitigate their emotional repercussions; and by modifying their responses, individuals adjust their emotional reactions to various situations or stimuli. The strategies employed by individuals for the regulation of their emotions possess the potential to enhance human health across multiple biological, psychological, social, and moral dimensions, thereby contributing to an improvement in quality of life, efficiency, and the nature of interpersonal relationships.

Extensive research has been undertaken within the domain of emotional self-regulation, both nationally and internationally. Abasi et al. (2015) determined in their investigation that students afflicted with learning disabilities exhibit a diminished capacity for emotional self-regulation in comparison to their typically developing counterparts. Karimi and Farahbakhsh (2012) reached the conclusion in their study that there exists a correlation between emotional self-regulation and academic performance. HajShamsayi et al. (2014) explored the mediating function of emotional self-regulation within the classroom environment and its association with students' maladjustment. Their findings revealed a negative correlation between emotional self-regulation and maladjustment. Saberi Fard and Hajiarbabi (2019), in their research entitled The Relationship between Family Emotional Climate and Emotional Self-Regulation and Resilience in Students of Mashhad Islamic Azad University, concluded that emotional regulation and resilience constitute two critical variables that are interrelated with the familial emotional climate experienced by students. Aflaki Fard and Akbari (2019), in their study titled The Relationship between Time

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Management and Creativity and Self-Regulation of Sixth Grade Elementary School Students in Saadabad, established a significant association between time management and both the creativity and self-regulation of students. There exists a notable relationship between time management and various dimensions of student creativity. There is also a significant relationship between time management and the dimensions of student self-regulation. Kazemi et al. (2019), in their study entitled Testing the Mediating Role of Self-Regulated Learning and Achievement Goals in the Relationship between Epistemological Beliefs and Academic Burnout, revealed that students' epistemological beliefs play a pivotal role in shaping their attitudes towards educational philosophy and practices; furthermore, these attitudes and beliefs, mediated by self-regulated learning and students' motivational orientation through the selection of achievement goals, can facilitate either progress and success or lead to stress and academic burnout over the long term. Consequently, students' awareness of their cognitive processes is instrumental in determining both their selection of achievement goals and the appropriate learning pathways (cognitive self-regulation). Ramani et al. (2010) identified that the constructs of self-regulation and its absence in preschool-aged children are correlated with their capacity to navigate behavioral and emotional challenges during peer interactions. Facilitating the acquisition of self-regulation skills in children during the formative phase of self-regulatory development enhances appropriate social exchanges and mitigates the potential for subsequent deficits in social competencies. Zhao et al. (2011) demonstrated through empirical research that the extent of teacher support for students' self-regulation exerts a substantial influence on their intrinsic motivation. Willoughby et al. (2011) delineated two distinct types of self-regulation, namely warm and cold regulation, characterized by the presence or absence of emotional arousal during self-control processes, thereby resulting in two differentiated dimensions of self-regulatory behavior. In their investigation involving 926 children aged 3 to 5 years, they found that performance on tasks requiring warm regulation exhibited a significant negative correlation with behavioral issues such as aggression, stubbornness, hyperactivity, and inattention, as assessed through teacher and observer evaluations. Daniela (2015) concluded in her research entitled "Investigating the Relationship between Self-Efficacy and Self-Regulation with Academic Performance of Romanian Secondary School Students" that the acquisition of self-regulation competencies is a pivotal component in the

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endeavors of high-achieving students, with the development of self-regulation exerting the most profound effect on academic performance and fostering enhanced communication and progress. Recognizing the critical importance of the self-regulation index within the specified statistical population, this study undertook a thorough examination of the validity and reliability of the Emotional Self-Regulation Strategies Questionnaire.

Material and Methods

The statistical population pertinent to this investigation encompasses all male and female students enrolled in the second high school located in Shiraz during the academic year of 2022. Hogarty et al. (2005) posit that a sample comprising at least 200 individuals is requisite for a comprehensive description of the sampling methodology; additionally, he recommends that 5 to 10 individuals be allocated for each parameter within the sample cohort. Consequently, the sample size for this inquiry was established at 200 individuals, comprising 106 females and 94 males. The sampling technique employed in this research was convenience sampling. In light of the prevailing conditions attributable to the COVID-19 pandemic, all questionnaires were procured via cyberspace.

Instrument

The Emotional Self-Regulation Strategies Scale served as the instrument for data collection in the present study. The inquiries within this questionnaire were predominantly derived from the Comprehensive Self-Regulation Guide authored by Larsen et al. (2008). This instrument comprises 44 inquiries that encapsulate dimensions related to cognitive, behavioral, situational, affective, negative mood reduction, and positive mood enhancement strategies. The emotional self-regulation assessment is a closed-ended format featuring seven response options ranging from "never" to "always," with a scoring range of 0 to 6. In the research conducted by Nazarpour Samsami et al. (2018), the Cronbach's alpha coefficient for this scale was determined to be 0.78. In this current investigation, the Cronbach's alpha coefficient was recorded at 0.76. The subscales of this questionnaire are delineated by the following inquiries:

Cognitive strategy: 2-3-9-10-18-19-26-32, Behavioral strategy: 4-7-11-12-13-14-15-22-35-36, Situation change strategy: 1-6-17-21-23-31, Emotion change strategy: 5-8-20-28-42, Negative

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mood reduction strategy: 15-29-30-34-38-39-44 and Positive mood enhancement strategy: 24-25-27-33-37-40-41-43.

Procedure

Following the preparation of the final iteration of the questionnaire and the identification of the research participants, preliminary explanations were provided (in cyberspace) concerning the study, emphasizing that participation was entirely voluntary and that no personal identification was required; the questionnaires were subsequently disseminated. Participants were afforded the liberty to select their preferred options without any temporal constraints. On average, the completion of the questionnaires necessitated approximately 25 to 30 minutes. Upon the collection of the completed questionnaires, respondents were acknowledged for their participation and further elucidations regarding the study's objectives and the subsequent analysis of their responses were provided. The completed questionnaires were systematically coded and entered into a computational framework, followed by analysis utilizing SPSS-18 and AMOS-21 software.

Results

In the current investigation, to ascertain the validity of the emotional self-regulation scale, a confirmatory factor analysis was performed on the items constituting this scale utilizing AMOS-21 software, and the outcomes of this analysis are delineated in the subsequent sections. The descriptive statistics pertaining to the scores of the respondents across the comprehensive questionnaire and its subscales are enumerated in Table 1. Figure 1 illustrates the factor structure of the emotional self-regulation scale as assessed in the current study.

Table 1. Descriptive statistics pertaining to the scores of respondents across the comprehensive questionnaire and its subscales

Variable	N	Mean	SD	Min.	Max.
Cognitive	200	33.35	5.46	12	43
Behavioral	200	45.64	7.42	14	53
Change in situation	200	23.39	3.27	10	29
Change in emotion	200	18.78	4.89	16	24
Reduce negative mood	200	21.54	4.41	13	34
Increase positive mood	200	24.52	5.12	12	40
Emotional self-regulation (whole questionnaire)	200	203.74	21.18	146	249

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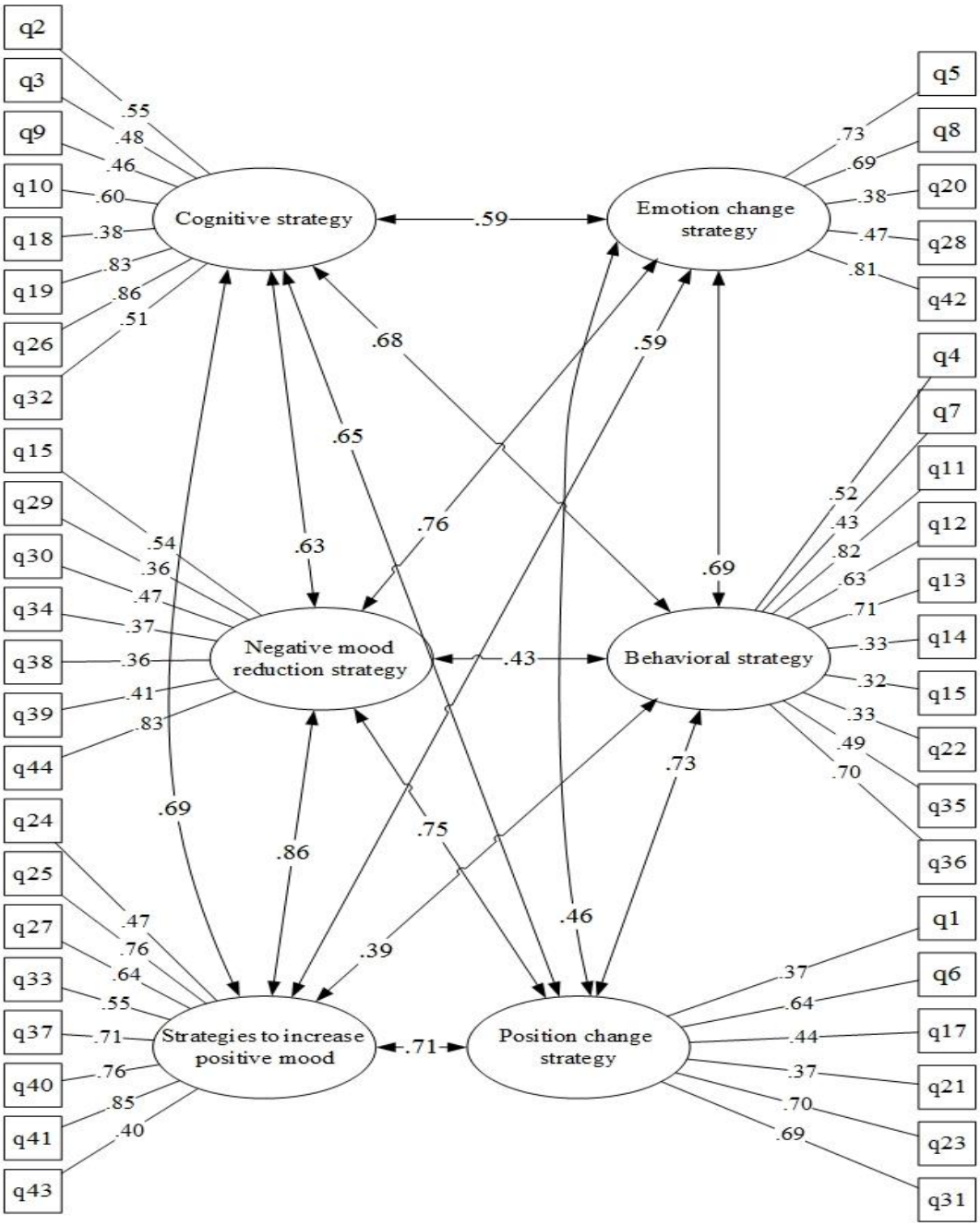

Figure 1. Factor structure of the emotional self-regulation scale.

According to Figure 1 and in the execution of the confirmatory factor analysis of the emotional self-regulation questionnaire, all items exhibited satisfactory factor loadings, specifically, all standardized coefficients surpassed the threshold of .30. In other terms, the items were found to load significantly on their corresponding factors.

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Table 2 presents the fit indices resultant from the confirmatory factor analysis for the emotional self-regulation questionnaire.

Table 2. Fit indices derived from the confirmatory factor analysis of the Emotional Self-Regulation Questionnaire

Fit indices	Value
Chi-square test (X^2)	2013.49
P	0.01
Degrees of freedom (DF)	887
Ratio of chi-square to degrees of freedom (X^2/DF)	2.27
Goodness of fit index (GFI)	0.92
Adjusted goodness of fit index (AGFI)	0.88
Normalized fit index (NFI)	0.75
Comparative fit index (CFI)	0.84
Incremental fit index (IFI)	0.83
Tucker-Lewis index (TLI)	0.76
Root mean square error of approximation (RMSEA)	0.076

The fit index values delineated in Table 2 indicate that the model demonstrates a commendable fit. The findings from the confirmatory factor analysis reveal that the root mean square error of approximation (RMSEA) coefficient is 0.076, the comparative fit index (CFI) registers at 0.84, the goodness of fit index (GFI) is quantified at 0.92, the adjusted goodness of fit index (AGFI) is noted at 0.88, the normalized fit index (NFI) is recorded at 0.75, the incremental fit index (IFI) is assessed at 0.83, and the Tucker-Lewis index (TLI) is established at 0.76, collectively suggesting a robust fit of the model to the data.

To evaluate the reliability of the questionnaire, the Cronbach's alpha method was employed, resulting in an overall reliability coefficient of 0.76 for the entire questionnaire, signifying acceptable internal consistency. Furthermore, the reliability of each individual subtest within this questionnaire was also computed employing the Cronbach's alpha technique, yielding a coefficient of 0.74 for the cognitive strategy subtest, 0.79 for the behavioral strategy subtest, 0.69 for the situation change strategy subtest, 0.83 for the emotion change strategy subtest, 0.75 for the negative mood reduction subtest, and 0.68 for the positive mood increase subtest. Additionally, the reliability was assessed using the split-half method. These coefficients, alongside the reliability of the entire instrument, are displayed in Table 3.

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Table 3. Reliability coefficients for the emotional self-regulation questionnaire (n=200)

Scales	Cronbach alpha	Split-half
Cognitive	0.74	0.72
Behavioral	0.79	0.76
Change in situation	0.69	0.61
Change in emotion	0.83	0.75
Reduce negative mood	0.75	0.64
Increase positive mood	0.68	0.58
Emotional self-regulation (whole questionnaire)	0.76	0.73

Discussion

The current investigation sought to examine the psychometric properties, specifically the validity and reliability indices, of the Emotional Self-Regulation Questionnaire to determine its applicability as an effective instrument for assessing emotional self-regulation and its constituent components among high school students in Shiraz. As delineated in the results section, the aforementioned questionnaire demonstrates satisfactory validity and reliability indices, and the factorial structure of the primary instrument was substantiated in the current study. Considering the imperative for an objective instrument to measure the emotional self-regulation construct, the present questionnaire appears to partially fulfill the educational, research, and counseling requirements within this domain. The Emotional Self-Regulation Questionnaire is suitable for administration in both individual and group settings. Furthermore, this instrument may also be employed to evaluate emotional self-regulation in students across various educational levels. Although the instrument does not impose a stringent time constraint, the average duration for completion ranges from 25 to 30 minutes, influenced by the educational level and general reading proficiency of the respondents.

The scoring methodology for this questionnaire is as follows: following the aggregation of each respondent's scores for each item, the cumulative scores can be summed and subsequently divided by the total number of items to derive an overall score. Additionally, distinct scores can be computed for each of the subtests utilizing this same approach. The aforementioned principle is equally applicable to the mean scores of the subtests.

The findings of Saberi Fard and Hajiarbabi (2019), and Nazarpour Samsami et al. (2018) align with the results of the present study. Each of these scholars has endeavored to report the validity and reliability of this questionnaire within their respective populations and statistical samples. The

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distinction between the current study and the previously mentioned investigations lies in the geographical context and the varying age and educational strata of the respondents in this questionnaire.

Attainment of the desired normative data, reliability, and validity for the emotional self-regulation questionnaire can significantly contribute to the identification of variables that may impede mental health. Emotional self-regulation represents a construct that, underpinned by a robust theoretical and empirical framework, can elucidate numerous positive psychological variables. This construct holds the potential to elucidate individual and psychological disparities among individuals. In this context, Bembenutty (2007) posits that the acquisition of self-regulation during skill development may account for individual variances. Successful students exhibit adaptive self-regulated learning strategies and motivational patterns when engaging in assignments (such as aspiring for success, embracing challenges, employing effective learning strategies, establishing specific goals, and exhibiting high levels of self-efficacy). Conversely, unsuccessful students exert less effort and demonstrate diminished interest in tasks, struggle to define specific goals and learning strategies, possess low self-efficacy, and infrequently attain elevated levels of success.

Researchers may employ this instrument as a pre-test and post-test within various research designs to assess the influence of this construct on cognitive and motivational outcomes. The constraints of this investigation encompass limitations associated with the research instrument as well as general limitations pertaining to the research itself. While the instrument may prove beneficial for counselors and researchers alike, it is imperative to acknowledge certain limitations. Initially, akin to other evaluative instruments, it should be utilized solely as a supplementary source of information regarding the degree of emotional self-regulation in conjunction with other established measures. Furthermore, notwithstanding the psychometric evidence supporting the validity and reliability of the aforementioned questionnaire, it remains a self-report instrument; consequently, its findings should be interpreted judiciously.

The overarching limitations of this study, which concentrates on a specific sample comprised of high school students from a particular urban locality, may hinder the broader applicability of the findings derived. Thus, it is advisable to investigate the validity and reliability indices of the aforementioned questionnaire across diverse samples and within varying cultural and geographical contexts. Additionally, the validity assessment of this instrument, which relies exclusively on one

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methodological approach to ascertain validity (confirmatory factor analysis), does not encapsulate the entirety of the validity determination process. Hence, subsequent investigations could explore the validity of the current instrument utilizing alternative methodologies for establishing validity.

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 Shiraz 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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