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## Predicting Exam Anxiety Based on Perfectionism and Academic Self-Regulation among High School Students in Sirjan

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### Article Info

#### Article type:

Research Article

#### Article history:

Received 21 Apr. 2024

Received in revised form 12 Jun. 2024

Accepted 22 Sep. 2024

Published online 01 Mar. 2025

#### Keywords:

Exam anxiety,  
Perfectionism,  
Academic self-regulation,  
High school students

### ABSTRACT

**Objective:** The current investigation sought to forecast examination-related anxiety through the lenses of perfectionism and academic self-regulation within the cohort of junior high school scholars located in Sirjan.

**Methods:** The methodological framework employed in this inquiry was descriptive correlational in nature. The statistical demographic pertinent to this research encompassed all junior high school students in Sirjan during the academic year 2024, from which a sample was derived utilizing convenience sampling techniques. The instruments utilized for data collection comprised the 23-item questionnaire developed by Friedman et al. (1997), the Multidimensional Perfectionism Scale (MPS), and the Magno Academic Self-Regulation Questionnaire (2011). To scrutinize the research hypothesis, multiple regression analysis was conducted.

**Results:** The outcomes of the statistical analysis indicated that both perfectionism and academic self-regulation demonstrated a significant ability ( $P < 0.05$ ) to predict levels of test anxiety.

**Conclusions:** Consequently, it can be posited that junior high school students may mitigate their examination anxiety through the implementation of self-regulation strategies and by modulating their perfectionistic tendencies.

**Cite this article:** Nabavi, S. (2025). Predicting exam anxiety based on perfectionism and academic self-regulation among high school students in Sirjan. *Iranian Evolutionary Educational Psychology Journal*, 7 (1), 319-330.

DOI: <https://doi.org/10.22034/7.1.319>

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Publisher: University of Hormozgan.



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## Introduction

Psychological indicators pertinent to junior high school students hold significant relevance, as this demographic is concurrently engaged in the developmental challenges associated with maturation and the selection of their prospective career-educational trajectories, notably the determination of a major ([Samavi et al., 2022](#)). In this context, test anxiety emerges as a critical form of stress characteristic of this developmental phase ([Abak, 2023](#)). Addressing the psychological challenges associated with test anxiety may prove beneficial in facilitating appropriate career and academic choices ([Motamedi et al., 2020](#)). Test anxiety can be conceptualized as a form of evaluative apprehension; that is, contingent upon the timing of its manifestation, it represents an evaluative or self-threatening response to the examination context ([Salimi et al., 2023](#)). Students experiencing test anxiety often exhibit a social apprehension regarding negative evaluations from peers, which diverts their attention from the examination itself, potentially leading to diminished performance outcomes ([Spielberger et al., 2015](#)). Test anxiety encompasses both cognitive dimensions (e.g., worry or diminished self-efficacy) and emotional dimensions (e.g., autonomic responses to stress), which may constitute vulnerabilities in an individual's capacity to confront assessments and consequently impact their performance therein ([Hewitt & Stephenson, 2012](#)).

A variety of factors can serve as predictors of test anxiety, among which perfectionism—characterized by the pursuit of exceedingly high and often unattainable objectives set by either students or their parents—ranks as particularly significant ([Xie et al., 2019](#)). Perfectionism exerts an influence on the cognitive dimension of test anxiety, engendering a deficit in requisite self-confidence necessary for successful test performance ([Smith et al., 2016](#)). Perfectionism is fundamentally an endeavor to eradicate imperfections, with perfectionists being individuals who strive for flawlessness across all facets of their existence ([Ocampo et al., 2020](#)). This trait of perfectionism can permeate all dimensions of an individual's life, potentially leading to dysfunction ([Gnilka et al., 2012](#)). Consequently, perfectionist parents are inclined to cultivate perfectionist tendencies in their offspring, thereby manifesting their perfectionism within their parenting methodologies ([Vanstone & Hicks, 2019](#)). Empirical findings have substantiated the presence of a normative form of perfectionism, contrasting with its neurotic counterpart. The neurotic facet of perfectionism is characterized by its detrimental and inflexible nature, associated with concerns surrounding perfectionism such as anxiety regarding errors, uncertainty in decision-

making, apprehension of disapproval from others, and discrepancies between aspirations and outcomes. This dimension exhibits a positive correlation with negative affect ([Stoeber et al., 2014](#)). Neurotic perfectionists maintain that they must attain exceedingly high standards and are intolerant of any failures or missteps; however, due to the unrealistic nature of these standards, they frequently encounter stress, depression, and anxiety ([Macedo et al., 2015](#)).

Another determinant influencing test anxiety is the concept of academic self-regulation. [Cheng and Liao \(2016\)](#) along with [Chang \(2016\)](#) propose that there exists a negative correlation between self-regulation strategies and test anxiety, asserting that an enhancement in the application of self-regulation strategies leads to a diminishment in test anxiety levels. [Amso et al. \(2019\)](#) posits that individuals lacking adequate self-regulation often encounter failure due to their inability to effectively plan their learning activities, which consequently elevates their anxiety levels and diminishes their overall life satisfaction. [Magno \(2010\)](#) asserts that imparting self-regulation skills to students fosters active engagement and organization in their learning processes, whereas the absence of such skills precipitate's feelings of despair and hopelessness regarding their educational endeavors. According to [Aksan \(2009\)](#), the implementation of self-regulation interventions among students not only augments their learning outcomes but also mitigates tendencies of withdrawal. In the investigation conducted by [Zhao et al. \(2022\)](#), the findings from structural equation modeling revealed that negative perfectionism significantly contributes to test anxiety among adolescent students. The lagged effect of perfectionism was found to be significant, as was the lagged effect of coherence on test anxiety, thereby suggesting that the sense of coherence plays a substantial mediating role in the relationship between perfectionism and test anxiety. In a study analyzing the correlation between perfectionism and test anxiety in high school students, with an emphasis on the mediating roles of self-efficacy and trait anxiety, the findings from [Wang et al. \(2019\)](#) indicated that adaptive perfectionism serves as a positive predictor of test anxiety, whereas maladaptive perfectionism exhibited no significant relationship with testing behaviors among a cohort of middle school students within a Chinese cultural context. When adaptive perfectionism enhances self-efficacy, it diminishes trait anxiety and subsequently reduces test anxiety; conversely, an increase in adaptive perfectionism may lead to heightened self-efficacy, trait anxiety, and test anxiety.

In light of the aforementioned considerations, the current study aims to investigate the predictive significance of perfectionism and academic self-regulation on exam anxiety from a descriptive and analytical standpoint.

## Material and Methods

The research method is descriptive in terms of data collection. The research is classified as a field and applied study based on its purpose and correlative based on its implementation method. The statistical population pertinent to the current study encompassed all male and female students enrolled at the first high school in Sirjan during the academic year 2024. Given the primary focus of the research (exam anxiety), and to mitigate the risk of imposing dual psychological stress on the participants, a sample of 200 male and female students was voluntarily selected to constitute the statistical sample of the study, utilizing a convenience sampling method. The size of the present sample was ascertained based on the framework proposed by [Kline \(2012\)](#).

Instrument: To evaluate the test anxiety experienced by students, a 23-item questionnaire developed by [Friedman and Bendas-Jacob \(1997\)](#) was employed, which assesses three dimensions: social humiliation (items 1 to 8), cognitive error (items 9 to 17), and tension (items 18 to 23). The scoring for each item ranges from strongly disagree (0) to strongly agree (3). The scoring methodology for items 19 through 22 is reverse-coded.

**Multidimensional Perfectionism Scale (MPS):** In this investigation, the dimensions of perfectionism among participants were evaluated utilizing the Multidimensional Perfectionism Scale (MPS). This scale, developed by [Hewitt and Flett \(1991\)](#), was subsequently standardized and validated within the Iranian context by [Besharat \(2011\)](#) on a representative Iranian sample. The scale comprises 30 items, where the initial ten items assess self-oriented perfectionism, the subsequent ten items evaluate other-oriented perfectionism, and the final ten items measure community-oriented perfectionism, all based on a 5-point Likert scale (ranging from 0 to 5). In the research of [Zoghi et al. \(2019\)](#), the reliability coefficients for this questionnaire, assessed using Cronbach's alpha method, were found to be 0.78 for self-oriented perfectionism, 0.75 for other-oriented perfectionism, and 0.80 for community-oriented perfectionism. In the present study, the Cronbach's alpha coefficient for this questionnaire was determined to be 0.77.

**Magno Educational Self-Regulation Questionnaire:** To assess the level of academic self-regulation among the sample participants, the Magno Educational Self-Regulation Questionnaire (2011) was utilized. This questionnaire consists of 55 items, with responses rated on a four-point Likert scale from 1 to 4. The instrument includes seven subscales, which encompass strategies related to memory, goal setting, self-evaluation, seeking assistance, organization, environmental planning, and learning responsibility. In the present investigation, the reliability of the full scale, as measured by the Cronbach's alpha method, was established at 0.75.

In this study, frequency, mean, and standard deviation were used to describe the data, and Pearson's correlation coefficient and multiple regression analysis were used to examine the research hypothesis. The software used in this work was SPSS 26.

## Results

Of the total 200 students who participated in the study, 107 were boys and 93 were girls. The average age of the participants was 14.83 for boys and 14.09 for girls, and 14.48 in total. Table 1 describes the variables included in the analysis.

**Table 1.** Descriptive indices of the research variables

Variable	Min.	Max.	Mean	SD	Skewness	Kurtosis
Exame anxiety	26	58	41.20	7.83	1.44	-0.36
Perfectionism	50	121	103.03	14.15	-1.85	0.012
Academic self-regulation	57	213	158.56	17.89	0.314	-0.561

In the present study, the variables of perfectionism and academic self-regulation were considered as predictor variables and the variable of exam anxiety as the criterion variable. In order to use the regression analysis test, it is necessary to examine and confirm its underlying assumptions, which are discussed below. The Shapiro-Wilk test was used to show the normality of the data. The Shapiro-Wilk statistic for the test anxiety variable ( $w=0.947$ ), perfectionism ( $w=0.913$ ), and academic self-regulation variable ( $w=0.881$ ) was not significant ( $p>.05$ ). Accordingly, the hypothesis of normality of the data was confirmed for all variables. This issue can also be confirmed in the descriptive statistics section and in the topic of skewness and kurtosis of scores because the skewness and kurtosis values of all variables are in the range of 2 to -2. Therefore, the use of parametric tests is not prohibited in the analysis of research hypotheses.

To show the significance of the relationship between all research variables, the Pearson moment correlation matrix was used. The results of this test showed that there is a direct relationship between the test anxiety and perfectionism variables, but an inverse relationship is seen between the exam anxiety and academic self-regulation variables. A direct relationship means that as a variable increases, the related variable also increases, and an inverse relationship states that as a variable increases, the related variable also decreases.

The present study was conducted over a limited period of time and its data were collected from a statistical sample over a certain period of time. Since the possibility of the time factor being involved is weak for cross-sectional data, the assumption of independence is valid and time factors cannot have significant effects on increasing or decreasing relationships and predictions. In addition, the value of the Durbin-Watson statistic was obtained as 2.441, which was far from the assumed points of 0 and 4, and accordingly, the assumption of independence of the residuals was confirmed. Accordingly, it is permissible to conduct regression analysis.

To examine the assumption of multiple noncollinearity, the variance inflation index was used. The value of this statistic was obtained for the perfectionism variable as 1.719 and for the academic self-regulation variable as 2.026, which, considering their large distance with a numerical value of 5, the assumption of multiple non-collinearities for the predictor variables is valid and there is no need to remove any of the variables from the regression model.

Considering the confirmation of the existing assumptions, multiple regression analysis (which indicates the existence of several predictor variables and one criterion variable) was performed. In this analysis, the predictor variables were entered into the analysis simultaneously. This method seemed appropriate because the researcher was looking to examine a general model of predictor variables and the interactive and simultaneous examination of the variables was considered.

Table 2 reports the standard and non-standard regression coefficients, standard error, T-statistic, and the probability of type I error related to the predictor variables.

**Table 2.** Results of regression analysis for predicting test anxiety

Predictors	B	B	SE	T	P
Perfectionism	0.48	0.43	0.05	9.60	0.001
Academic self-regulation	-0.44	-0.35	0.07	-6.28	0.001

Table 3 shows the results of the analysis of variance related to the regression model.

**Table 3.** Results of the analysis of variance related to the regression model

Source	SS	DF	MS	F	P
Regression	15521.032	2	7760.516	123.504	0.001
Residual	12378.739	197	62.836		
Total	27899.771	199			

The  $R^2$  coefficient of this model was 0.44. Based on the findings, it was determined that the regression model used in this study is at a desirable level. The  $R^2$  value indicates that 44 percent of the changes in the exam anxiety variable (criterion variable) are explained by the perfectionism and academic self-regulation variables (predictor variables). Therefore, the research hypothesis is confirmed.

## Discussion

In order to elucidate the substantial correlation between perfectionism and test anxiety, a variety of both consistent and inconsistent research backgrounds have been employed alongside the theoretical framework posited by the researcher. Investigations conducted by [Choy et al. \(2007\)](#) demonstrated that students characterized by perfectionistic tendencies exhibit detrimental emotions and psychological distress prior to, subsequent to, and even during the execution of evaluative tasks. The apprehension regarding negative evaluations from peers engenders elevated levels of anxiety when these individuals undertake their assignments. [Rice et al. \(2012\)](#) ascertained through their investigations that the levels of worry and emotional arousal in perfectionistic students during examination contexts are markedly higher than those observed in students with low levels of perfectionism.

In corroboration of the outcomes of this research, it can be recognized that the pursuit of unattainable personal standards inherent in perfectionism fosters self-criticism and feelings of helplessness among students, thereby amplifying experiences of failure, which in turn engenders critical self-assessments and a significant decline in self-esteem while exacerbating anxiety ([Ghadami, 2014](#)). [Short and Mazmanian \(2013\)](#) further explored the roles of rumination and mindfulness as mediators in the nexus between perfectionism and various forms of psychological



distress within a specified model. Their findings indicated that socially oriented perfectionism correlates with heightened levels of distress, encompassing negative affect, anxiety, stress, and depression; conversely, self- and other-oriented perfectionism did not exhibit significant associations with distress. They concluded that the constructs of referential thinking and mindfulness serve as mediators in the interplay between socially oriented perfectionism and psychological distress. Scholars have documented that perfectionism engenders behaviors such as avoidance and frequent evaluations of performance, along with cognitive biases including dichotomous thinking, selective attention to failures, and escalated standards for achievements ([Glover et al., 2007](#)). Negative perfectionism has the potential to precipitate anxiety, academic burnout, procrastination, academic underachievement, self-criticism, unrealistic expectations regarding one's own and others' performance, and a propensity for establishing unattainable standards.

The current investigation further revealed that self-regulation exhibits a substantial negative correlation with test anxiety, corroborating the findings of [Cheng and Liao \(2016\)](#) and [Aksan \(2009\)](#). To elucidate this observation, one may consider the precursors of test anxiety as articulated by [Sarason \(2013\)](#), who highlighted elements such as inadequate study skills; that is, the individual's lack of knowledge regarding effective study methodologies impedes material mastery, consequently engendering anxiety during assessments due to deficient self-regulation competencies. Within this theoretical framework, it is posited that worry or cognitive expressions of anxiety detract from the individual's concentration on the primary task, thereby exacerbating anxiety levels; conversely, according to [Zimmerman and Martinez-Pons \(1988\)](#), a self-regulated individual is characterized as goal-oriented, endeavoring to attain objectives optimally through the employment of time management strategies, meaningful practice, the judicious application of cognitive and metacognitive techniques, the establishment of attainable goals, and the regulation of emotional states. Hence, it can be asserted that self-regulated individuals, by utilizing effective study skill techniques, engage with their learning endeavors in a cognitive and realistic manner, and instead of succumbing to worry and distraction from their educational tasks, they concentrate on their learning objectives by focusing on the acquisition of knowledge and the management of negative emotions, which may mitigate test anxiety. Drawing upon the findings and discussions presented, it can be concluded that students at the lower secondary school level have the potential



to alleviate their test anxiety through the implementation of self-regulation strategies and the calibration of perfectionism levels. School psychologists and counselors can play a pivotal role in enhancing the aforementioned constructs by employing contemporary scientific approaches.

One limitation of the present study is the use of a convenience sampling method, which may affect the generalizability of the findings to the broader population of junior high school students in other regions or educational contexts. Additionally, as a cross-sectional and correlational study, the data reflect relationships at a single point in time and do not establish causal connections between perfectionism, academic self-regulation, and test anxiety. The reliance on self-reported questionnaires is another potential limitation, as participants may have been influenced by social desirability bias or may not have accurately assessed their own psychological states.

Future research should aim to replicate the study using a longitudinal design to better understand the causal relationships and temporal dynamics among perfectionism, self-regulation, and test anxiety. Including diverse geographical and cultural samples would enhance the external validity of the results. Moreover, integrating qualitative methods, such as interviews or focus groups, could provide deeper insights into the subjective experiences of students dealing with test anxiety. Researchers may also consider examining intervention-based studies that aim to reduce perfectionistic traits or improve self-regulation strategies and assess their direct impact on lowering test anxiety levels in educational settings.

#### **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.

#### **Funding**

The author did (not) receive support from any organization for the submitted work.

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