



## Predicting Students' Test Anxiety Based on Their Spiritual Well-Being and Mindfulness

### ARTICLE INFO

#### Article Type

Descriptive Study

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#### How to cite this article

Hamidi F, Meshkat M, Sayadi Nejad M. Predicting Students' Test Anxiety Based on Their Spiritual Well-Being and Mindfulness. Health Education and Health Promotion. 2019;7(4):163-168.

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#### Article History

Received: May 28, 2019  
Accepted: October 13, 2019  
ePublished: December 21, 2019

### ABSTRACT

**Aims** Test anxiety is a significant and scary distressing feeling that appears before, during, or even after the exam. The current study aimed to predict test anxiety in high school female students based on their spiritual well-being and mindfulness.

**Materials & Methods** In this descriptive-analytic and cross-sectional study, the statistical population included all 4<sup>th</sup> grade of girl high school students in Tehran (140,000 students). The sample concluded 312 female students of 4<sup>th</sup> grade high schools in Tehran selected by multistage cluster sampling. The test anxiety scale developed (2004), Langer's Mindfulness scale (2004), and Well-Being scale (Paloutzian and Ellison; 1982) were completed by participants. Data was analyzed using Pearson correlation test, Enter multiple and stepwise regression.

**Findings** Pearson correlation showed a significant and negative relationship between test anxiety and spiritual well-being variables ( $r=-0.28$ ;  $p=0.05$ ) and also the negative relationship with mindfulness ( $r=-0.44$ ;  $p=0.05$ ). Regarding the results, students' test anxiety was predictable based on their spiritual well-being and mindfulness and both variables can predict 9% of the variances of changes in the test anxiety ( $R^2=0.09$ ).

**Conclusion** According to the results, the higher level of spiritual well-being and mindfulness, the lower level of test anxiety will be observed in students. So, it is expected that by focusing on specific techniques of mindfulness and performing activities that have a positive impact on students' spiritual well-being can reduce the level of student anxiety and, consequently, improve their academic performance.

**Keywords** Test Anxiety; Spiritual Well-being; Mindfulness; Students

### CITATION LINKS

- [1] Test anxiety and its impact on first year university students and the over view of mind ... [2] Comparative study of relationship between general perceived self-efficacy and test ... [3] Subjective well-being, test anxiety, academic achievement: Testing for ... [4] Contribution of student's perception toward teacher's goal orientation and ... [5] Reappraising test anxiety increases academic performance of first-year ... [6] Metacognitive skills, academic success and exam anxiety as the ... [7] Self-efficacy, achievement goals, and metacognition as ... [8] Motivation interventions in education: A meta-analytic ... [9] A difference-education intervention equips first-generation college ... [10] Emotion regulation and mindfulness in adolescents: Conceptual and empirical connection and ... [11] Interventions for test anxiety: How faculty can ... [12] Studying the effects of teaching cognitive and metacognitive strategies on self-regulation learning ... [13] The relationship between self-efficacy and test anxiety among the Paramedical ... [14] Effectiveness of brief mindfulness techniques in reducing symptoms of anxiety ... [15] Brief mindfulness intervention on math test anxiety and exam scores in a high ... [16] Efficacy of the third wave of behavioral therapies: A systematic ... [17] Brief mindfulness meditation for depression and anxiety symptoms in ... [18] Quality improvement project aimed at integrating an adapted ... [19] Langer mindfulness scale user guide and technical ... [20] Exemplifying a shift of ... [21] Effectiveness of mindfulness-based stress reduction and ... [22] The effectiveness of mindfulness training method on male ... [23] Loneliness, spiritual well-being and the quality of ... [24] The effectiveness of immunization and regulated desensitization training ... [25] Advances in the conceptualization and ... [26] Standardization of Langer mindfulness scale in ... [27] Validation of the Persian version of the Langer ... [28] Relationship between test anxiety and spiritual health in ... [29] The Impact of Spiritual Wellbeing and Coping Strategies on Patients ... [30] Mindfulness, psychological well-being and ... [31] Mindfulness-based cognitive therapy in the intervention ... [32] Mindfulness, concentration and student ... [33] Relationship of religious beliefs with anxiety ...

## Introduction

Test anxiety has an impact on students either negative or positive. Successful academic performance has always been the focus of attention of educational systems and has been considered as a criterion for assessing the effectiveness of educational systems. Therefore, the study of the factors affecting academic performance has been among the main subjects of research from decades ago [1]. Test anxiety is another important factor that has a significant effect on academic performance. Recent research suggests that test anxiety is closely related to lack of interest in learning, and poor performance in the exam [2]. In a review of test anxiety literature, there are various definitions by the experts with a relative consensus. In the context of adolescents' subjective well-being, research has recently focused on a number of different school variables [3]. The test anxiety is defined as a special type of anxiety, which is particularly relevant to the condition that the person experiences before, during the exam and after it [4]. Leading some researchers to suggest that such interventions might be effective only in this domain [5-7]. These findings contribute to a growing literature on social psychological interventions in education and underscore that how students make sense of themselves and their experiences is consequential for their well-being and performance [8-11].

The test anxiety can originate from both internal and external sources. An internal source is related to attitude, motivation, self-confidence, self-image, etc. An external source of exam anxiety is also related to self-study or examination. In this regard, Deffenbacher and Hazaleus identify three sources of exam anxiety: 1. The negative attitude toward their performance and comparing it with the performance of other students; 2. The emotional aspect; and 3. The aspect related to the task or the exam itself [12]. There are also some predictors of test anxiety in the literature of this subject. Factors such as personality that including low self-esteem, locus of control center (internal/external), social anxiety, efficiency, frustrations, inadequate skills in reading and learning. Asayesh *et al.* showed that the more self-efficacy of the students, the less experienced anxiety test [13].

Mindfulness is another variable that is predictive of anxiety and stress and test anxiety [14, 15]. Mindfulness is a form of meditation that is rooted in the teachings of eastern religious traditions especially Buddhism [16]. Also, mindfulness meditation appears to be feasible and well tolerated in patients on hemodialysis with anxiety symptoms for young people in times of acute stress, for example, during exams, and offering support in a timely manner is often a challenge [17, 18]. Langer points out that through the active state of mindfulness, the individual can be open to the complexity, uncertainty,

and uniqueness of phenomena. According to him, mindfulness consists of a series of developments in being, thinking, feeling, and living [19]. In the mindfulness, the individual becomes aware of his mental mode at any moment, and after this awareness, he learns to move the mind from one gear to another on two modes of mind, doing and being, which requires learning the behavioral, cognitive, and metacognitive strategies used to focus the attention process [20, 21]. It is also worth noting that mindfulness occurs through two major approaches of MBSR and MBCT [22]. Emotion regulation can manage people's adjustment and effect on their performance and reducing their anxiety [23].

The present study attempted to consider the main variables of test anxiety, mindfulness and spiritual well-being in relation to each other. In studying the research background, there is a gap regarding the subject of the present study. Therefore, the present study tried to predict the test anxiety of female students based on mindfulness and spiritual well-being. Thus, this study was carried out to examine the role of spiritual well-being and the presence at the moment and examine the ability of each of these variables in predicting test anxiety.

## Materials and Methods

The present study is a correlation study, and descriptive in terms of data collection. The statistical population included 140,000 4<sup>th</sup> grade of girl high school students in Tehran. The sampling method in this study was multistage cluster random sampling. Also, 19 districts of Tehran were geographically divided into five clusters (north, south, east, west, and center of Tehran) to include all Tehran high schools. In the next step, a list of high schools of Tehran was compiled based on the selected clusters and two schools were selected randomly from each cluster. In total, 10 schools were selected among all high schools in Tehran. Then, according to the Morgan table, 384 samples were selected, but finally, 370 questionnaires were completed and analyzed. To conduct the research, after obtaining the necessary permits and coordinating with the authorities, informed written and oral consent was obtained from the participants in the study and they were assured that the information was confidential and that the conduct of the research would not cause any harm to them. Data was analyzed by Pearson correlation and Enter regression.

### Data collection tools

**1- Test Anxiety Inventory (TAI):** This questionnaire was developed by Abolghasemi *et al.* in 2004, which includes 25 questions scored based on a 4 degrees Likert scale (0, 1, 2, and 3). Abolghasemi *et al.* used retest and estimated the reliability of the test anxiety inventory for all subjects, female subjects and male subjects as 0.78, 0.88, and 0.67, respectively [24]. Moreover, to assess the criterion validity of TAI,

Coopersmith Self-esteem Inventory (2002) was used. Correlation coefficients of all subjects' scores, female subjects and male subjects' scores on self-esteem inventory with TAI were -0.57, -0.68, and -0.43 ( $p \leq 0.001$ ). The reliability of the test in the final execution was 0.92 using Cronbach's alpha. The correlation coefficient of each question with the total score of the test is in the range of 0.45-0.72, and significant. It indicates the internal consistency of the test questions [24].

In the present study, its validity was examined through confirmatory factor analysis. Results suggest the acceptability of fitness indicators. Also, the reliability of TAI was obtained 0.90 using Cronbach's alpha coefficient after validity was confirmed.

**2- Spiritual Well-Being Questionnaire:** The Spiritual Well-Being scale was developed in 1982, which includes 20 questions and two sub-scales (Paloutzian and Ellison). Answering the questions is based on a 6-point Likert scale; from completely agree to disagree. The scoring of questions is from 1 to 6 and provides three scores of religious well-being, existential well-being, and total score of spiritual well-being. The retest reliability coefficients for religious well-being, existential well-being, and total scale were 0.96, 0.86, and 0.93, respectively and the Cronbach's alpha coefficients were reported 0.91, 0.91, and 0.93, respectively [25].

Administering factor analysis on the spiritual well-being scale confirmed all its items. After verifying the validity through confirmatory factor analysis, the reliability of the spiritual well-being questionnaire was calculated using Cronbach's alpha coefficient and obtained as 0.88 for the self-awareness scale, and 0.84 and 0.81 for religious well-being and existential well-being subscales, respectively. In total, the findings indicate good reliability and validity of the spiritual well-being questionnaire.

**3- Langer's Mindfulness Scale (LMS):** Langer's Mindfulness scale (2004) has 21 items and 4 sub-scales, and some items are scored in reverse. The questionnaire has sub-scales of flexibility (items 3, 6, 14, and 17), novelty producing (items 1, 7, 8, 11, 12, and 19), engagement (items 5, 21, 16, 18, and 20) and novelty seeking (items 2, 4, 9, 10, 13, and 15). After confirmation of validity by confirmatory factor analysis, Cronbach's alpha was obtained as 0.71 for the mindfulness scale, and 0.47, 0.54, 0.65, and 0.73 for flexibility, novelty producing, engagement, and novelty seeking subscales, respectively, and these coefficients are in the desired range [26, 27]. Furthermore, convergent and discriminant validity of the instrument was examined via investigating the relationship between the Persian LMS with the WHOQOL instrument [30].

### Findings

All of the samples in the present study were female students. Respondents ranged in age from 17 to 19 years. Also, the highest frequency was for 18-year-olds and the lowest frequency was for 19-year-old students.

Pearson correlation coefficient test was used to investigate the relationship between the test anxiety of 4<sup>th</sup> grade high school students and the dynamic presence at the moment. According to the normality of the variables, Pearson correlation coefficient was used to investigate the linear relationships between the variables (Table 1).

As Table 1 shows, there is a negative and significant relationship between test anxiety and spiritual well-being variables ( $p \leq 0.05$ ;  $r = -0.28$ ) and mindfulness ( $p \leq 0.05$ ;  $r = -0.44$ ) among studied students. The results of regression analysis are shown in Tables 2 and 3.

**Table 1)** The results of correlation between study variables

Variable	Mindfulness	Spiritual wellbeing	Anxiety
Mindfulness	1	-	-
Spiritual wellbeing	0.20*	1	-
Anxiety	-0.14*	-0.28*	1

\*Significance at error level is  $p \leq 0.05$ .

**Table 2)** The results of analysis of variance related to Enter regression for prediction of test anxiety based on variables of spiritual well-being and mindfulness

Model	Sum of squares	Df	Ms	F	Sig	R	R <sup>2</sup>	DW
Regression	12.30	2	6.15	14.86	0.01	-0.29	0.09	1.69
Residual	127.81	309	0.41					
Total	140.12	311						

**Table 3)** Enter multiple regression coefficients for prediction of test anxiety based on spiritual well-being and mindfulness variables

Model	B	Unstandardized coefficient	Unstandardized coefficient	Standardize coefficient	t	Significant
Constant	3.93	0.29	0.29		13.55	0.01
Mindfulness	-0.08	0.05	0.05	-0.09	-1.61	0.05
Spiritual wellbeing	-0.24	0.05	0.05	-0.26	-4.77	0.01

Regarding the results of Table 2, it is observed that 9% of the variances of changes in the test anxiety variable can be explained through the variables of spiritual well-being and mindfulness ( $r^2=0.09$ ). In addition, the findings of multivariate regression analysis show that F ratio is significant at the level of 0.05 ( $p<0.01$ ;  $F=14.86$ ). The significance of the F test indicates that the predictor variables have the ability to predict the variance of the test anxiety. Finally, the Durbin-Watson statistics results indicate the independence of the errors.

In the analysis of the results of the regression Table, the Beta coefficient is used. The Beta coefficient is a number between -1 and +1 so that the closer the beta coefficient is to one, there is a stronger relationship between the independent and dependent variable, and if the coefficient is positive it indicates a direct relation, and vice versa. Also, the beta coefficient is obtained for the spiritual well-being variable as -0.24 and for the mindfulness variable as -0.08 ( $p\leq 0.05$ ), so there is an inverse relationship between the two variables of spiritual well-being and mindfulness with anxiety. Totally, considering the results of examining the correlation coefficient and regression analysis, the study hypothesis of the predictability of test anxiety among 4<sup>th</sup> grade high school students based on their spiritual well-being and their mindfulness is confirmed (Table 3;  $p\leq 0.01$ ).

## Discussion

The hypothesis of the present study suggests that it is possible to predict the test anxiety of 4<sup>th</sup> grade high school students based on spiritual well-being and mindfulness. This hypothesis is confirmed based on the present results. This finding is consistent with the results of the study by Moqimiyan *et al.*<sup>[28]</sup>. Moqimiyan *et al.* in their study stated that there is an inverse relationship between spiritual well-being and test anxiety<sup>[28]</sup>. In other words, the higher the level of spiritual well-being, the lower is the level of test anxiety. Also, results are consistent with the findings of Safara and Bhatia<sup>[33]</sup>. According to them, religious beliefs has a reverse relationship with anxiety and depression. In other words, as religious beliefs are more deeply rooted, less depression and anxiety are experienced by the individual. In this regard, the results of the study by Steinmay *et al.* also showed that there is a negative relationship between spiritual well-being and social anxiety<sup>[3]</sup>. Furthermore, a part of the findings of Amjad and Bokharey is consistent with the results of this study<sup>[29]</sup>. According to them, spiritual well-being predicts the level of test anxiety. The results obtained from the study of Parto and Besharat are consistent with the present findings<sup>[30]</sup>. They indicated that there is a relationship between mindfulness with psychological well-being and psychological anxiety. In this regard, the results of Fei Xie *et al.* showed that mindfulness-based intervention with cognitive

therapy approach is effective in the treatment of anxiety disorder<sup>[31]</sup>. Anxious students feel inadequate when controlling for the exam and do not deal with rational issues and have less control over annoying and negative thoughts. Anxiety not only disturb students' academic performance but also their mental, psychological, and emotional well-being. People with test anxiety appear to be unstable due to impaired metacognition in decision making and feel absurd, pessimistic, or self-deprecating. This leads individuals to threat assessment and ineffective coping strategies. Increased test anxiety is associated with decreased academic performance. On test anxiety, researchers have always found a negative correlation between various aspects of academic efficacy and the wide range of exam anxiety measures have been reported, and almost all of them have attributed such results to anxiety that temporarily impair normal mental activity.

Among the techniques of mindfulness, yoga has the greatest effect on reducing the symptoms of depression and anxiety. Also, Researchers such as Mrnjaus and Krneta stated that meditative exercises can increase concentration, increase self-awareness and increase the level of mindfulness and ultimately improve academic achievement<sup>[32]</sup>. Test anxiety is a type of anxiety that occurs in a position of evaluation or problem solving, and its axis, doubt about its performance and its consequences are a significant drop in the ability to cope with the situation. In other words, this anxiety places the level of incidence of performance lower than the actual level of the person. However, the more anxiety, in this case, the effectiveness of education decreases.

Regarding the high prevalence of test anxiety among students and its negative effects on academic performance, and also considering the results of this study, by identifying these students and engaging them in mindfulness-based stress reduction (MBSR), they could improve their level of academic performance and mental health by focusing on mindfulness techniques. Since one of the most influential types of family relationships is parent-child relationships, as well as individual or group counseling sessions at school, can involve parents and students with the concepts of test anxiety, spiritual well-being, and familiarity with the students, and held meetings with the students about the benefits of these methods and techniques. The process of mindfulness training facilitates one's thoughts by emphasizing the decentralization perspective. Characteristics of the mindfulness method are that it alerts the person of the origins of the disorder and its mechanism in the brain, prevents them from becoming anxious, focuses on their thoughts and desires in a state of consciousness, and allows the individual to do not choose repetition or rumination to alleviate anxiety and think about the biological root of the disorder. Test anxiety is too

preventable. There are some ways to prevent it, as the following:

**1- Realistic assessment without exaggeration of the exam:** Students will be less anxious if the exam is considered normal and not frightened by the rules and questions.

**2- Avoiding Excessive Attention to Test Anxiety:** The more students anxious about exam anxiety, the more anxious they will be to improve on their previous successful experiences rather than to focus too much on exam anxiety and take note of their previous successful experiences.

**3- Constructive Behaviors, such as Consultation and Practice:** Constructive responses and behaviors such as further reading, consulting with others, practicing previous exam questions, or current potential questions can be harmful.

**4- Competency to Pass the Exam:** Students should have the feeling that the exam is okay and can dominate it. Similar situations can be created for the actual exam to reduce their anxiety about being overwhelmed by these stressful situations.

**5- Resolving unfavorable stimuli:** Unfavorable stimuli remain guilty, insecure, and afraid of getting a low score.

Because of the possible bias in answering the questionnaire and also the specific conditions in which the students answered the questions, there were some limitations to the results of the study. Also, due to the community of the present study consisted of female students of particular ages, caution should be exercised in generalizing the results of this study to the community and the conditions of other examples.

Considering the frequency and prevalence of test anxiety in students and its destructive effect on their academic performance and mental health, it is recommended to identify other predictive factors in the emergence of this state in future researches. As one of the most influential types of family relationships is parent-child relationships, parents and students with the concepts of test anxiety, spiritual well-being, and dynamic presence can be found in parent and teacher meetings as well as in individual or group counseling at school. Learned at the moment and held meetings with parents and students on the benefits of spiritual well-being and the dynamic presence of the moment, their methods and techniques of promotion, as well as test anxiety and its methods and techniques.

## Conclusion

Since one of the most influential types of family relationships is child-parent relationship, it is possible to introduce the concepts of test anxiety, spiritual well-being, and mindfulness to students and their parents, and held some group counseling sessions for them about the benefits of spiritual well-being and mindfulness, the related strategies and

techniques for promoting them, as well as the effects of test anxiety and methods and techniques for reducing it.

**Acknowledgments:** The present study performed according to the cooperation of principals and all 4<sup>th</sup> year high school students in Tehran. Gratitude to them for their cooperation.

**Ethical permissions:** All ethical principals were considered in this study. At all stages of the study, ethical tips have been implemented by authors.

**Authors' Contribution:** Farideh Hamidi (First author), Introduction author/ Statistical analyst/ Discussion author (40%); Maryam Meshkat (Second author), Assistant/ Discussion author (20%); Mahin Sayadi Nejad (Third author), Methodologist/ Original researcher / Discussion author (40%).

**Conflict of Interests:** The Authors state that there is no conflict of interests.

**Funding/Support:** The financial source of this study has been produced by researchers.

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