

## Prediction of the Correlation between Test Anxiety and Psychological Well-Being Considering the Mediating Role of Religious Orientation in University Students

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Abolghasem Yaghoobi<sup>1</sup> , Akbar Orvati Movafagh<sup>2</sup> , Kambiz Karimi<sup>3\*</sup> , Afagh Karimi<sup>4</sup> 

1 Professor, Department of Psychology, Faculty of Economics and Social Sciences, Bu Ali Sina University, Hamadan, Iran

2 Assistant Professor, Department of Islamic Studies, Faculty of Humanities, Bu Ali Sina University, Hamadan, Iran.

3 Ph.D. Student of Educational Psychology, Department of Psychology, Faculty of Economics and Social Sciences, Bu Ali Sina University, Hamadan, Iran.

4 M.Sc. in Islamic Philosophy and Theology, Department of Philosophy, Faculty of Literature and Humanities, Kharazmi University, Tehran, Iran.

### Abstract

**Background and Objectives:** Test anxiety is one of the most common types of anxieties in the learning environment that can be correlated with the psychological well-being of university students. However, the religious orientation of the individuals may have effects on this relationship. Therefore, this study aimed to predict the correlation between test anxiety and psychological well-being, emphasizing the mediating role of religious orientation.

**Methods:** This descriptive-correlational study was performed based on the structural equation model. The statistical population included the students in Hamadan University of Medical Sciences, Hamadan, Iran, in the first semester of 2018. In total, 343 students were randomly selected using a cluster sampling approach. Data were collected using Spielberger's Test Anxiety Inventory, Ryff's scales of psychological well-being, and Allport's Religious Orientation Scale. Following that, the data were analyzed using the Pearson correlation coefficient, confirmatory factor analysis, and the Sobel test.

**Results:** The results showed that the causal relationship of test anxiety and psychological well-being with religious orientation had a good fit. Accordingly, the internal and external religious orientation had a positive and negative correlation with psychological well-being, respectively, and both dimensions of religious orientation play a mediating role in the relationship between test anxiety and psychological well-being.

**Conclusion:** Considering the negative effects of test anxiety on the psychological well-being of medical students, it can be said that religious orientation plays a key role in the moderation of this correlation.

**Keywords:** Psychological Well-being, Religious Orientation, Students, Test Anxiety.

\*Correspondence: Should be addressed to Dr. Kambiz Karimi. Email: [kambiz.karimi90@gmail.com](mailto:kambiz.karimi90@gmail.com)

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### Introduction

Psychological well-being plays a significant role in people's life. Welfare manifests itself through the impact it has on important life structures, such as basic psychological needs (1). Knowledge of the variables that affect this structure is of great

importance for future interventions (2). Research findings report a decrease in the students' psychological well-being, compared to non-student peers (3). Students have shown a high level of anxiety (48%) in the situations in which they are supposed to do academic

assignments. According to the studies, this can be related to their psychological well-being levels that require further investigations in this regard (4).

There are concerns about the decreased overall level of psychological well-being among university students (5). People with low psychological well-being evaluate their life events and situations as unfavorable and experience more negative emotions. Moreover, they are less capable to control their diseases and show less flexibility in confrontation with difficulties (6). Psychological well-being is one of the most important components of university students' health (7), and its optimal management strengthens the immune system against physical pain and chronic diseases. However, research findings have revealed that test anxiety is one of the most important structures affecting psychological well-being. In fact, increased levels of test anxiety compromise individuals' psychological well-being (9).

Based on the results of several studies, test anxiety is one of the growing problems among university students. Accordingly, more than 35% of university students suffer from severe test anxiety, which can be a sufficient reason for their defective performance (10, 11). Students face various challenges during their studies, including changes in habits in order to adapt to the new environment. Furthermore, they struggle to gain high academic achievements to fulfill the expectations of others, which paves the way for increasing the anxiety level (12). Severe anxiety level threatens the physical and psychological well-being of individuals and has detrimental effects on their personal, social, familial, professional, and educational performance (13). The results of a study that examined the rate of test anxiety in nursing students reported the existence of different levels of test anxiety from severe to moderate in about 50% of the students (10). Regarding the causal association between test anxiety and psychological well-being, there are factors to predict the changes in the students' psychological well-being based on their test anxiety.

It can also be assumed that test anxiety has

a negative effect on the components of psychological well-being (14) and various studies (15, 16) have shown the relationship between test anxiety and psychological well-being. According to a study conducted by Bewick et al. (2010), the level of psychological stress, as an indicator of the level of psychological well-being in university students, is higher in the first year of academic education. Therefore, the freshmen show a significantly low level of psychological well-being, compared to others (17).

Considering the comprehensive role of religion in the promotion of mental health and the level of psychological well-being, the importance of spirituality and its growth in human existence has attracted the attention of psychologists in recent decades (18, 19). Religious orientation is defined in terms of the extent to which each individual pursues his or her own religious beliefs. This concept has been conceptualized as a single structure in a continuum between internal and external belief systems.

People with an external religious orientation use religion for fulfilling their needs; however, those with an internal religious orientation seek their basic motives in religion (20). Some researchers believe that dealing with anxiety and coping with certain social situations is facilitated by religious beliefs. The results of studies have reported a negative relationship between internal religious orientation and test anxiety (21, 22); nonetheless, external religious orientation showed a positive relationship with test anxiety (23).

Religious orientation will play a mediating role in giving purpose to life and facilitating the well-being of the individual by helping them to perform spiritual activities. Moreover, it helps to reach integrity in life, thereby affecting various components of psychological well-being, such as personal growth and purposefulness (24). Previous studies (18, 25, 26) have also reported a stable relationship between the religious orientation of the individuals and their psychological well-being.

Despite sufficient theoretical and experimental research investigating the relationship between

the studied variables, less attention has been paid to the possible mediating role of religious orientation in the relationship between test anxiety and psychological well-being in the literature. Therefore, the present study aimed to propose and test an integrated model to hypothesize a mediating role of the dimensions of religious orientation in the relationship between test anxiety and psychological well-being. Furthermore, an attempt has been made to respond to the following questions: 1- Does the proposed structural model fit the data obtained from the relationship of test anxiety and psychological well-being with religious orientation? 2- Does internal and external religious orientation play a mediating role in the relationship between test anxiety and psychological well-being?

## Methods

This descriptive cross-sectional and correlational study was conducted based on a structural equation model. The statistical population included all the students of Hamadan University of Medical Sciences, Hamadan, Iran, in 2019. It is suggested that the sample size in such studies be two to three times the number of questionnaire items at a minimum and 10 times at a maximum based on  $(2Q < n < 10Q)$  where  $n$  and  $Q$  indicate sample and questionnaire items, respectively (27). Therefore, considering the sample attrition rate, 375 students were selected using the cluster sampling method, and four faculties (Medicine, Dentistry, Nursing and Midwifery, and Paramedical) were chosen out of 11 faculties. Subsequently, three classes in each faculty were selected that included sophomore students onwards.

After obtaining the required permissions from the dean and vice-chancellor of the faculties and in coordination with the test organizer, the questionnaires were distributed after calling the rolls and before the distribution of the exam papers of the first test in the first semester. The participants were given 30 minutes to respond to the questionnaires. It should be noted that the survey was conducted on the students who had an exam from a specialized course at 10:00 a.m.

It should be noted that the reason for choosing

the first exam was to control the effect of such events as knowing the bad score of the previous exam that can cause distortion in the results. Furthermore, in order to control the special physical and environmental conditions of the subjects and also the absence of another exam in the halls after this exam, exams at 10 a.m. were considered suitable for the survey. The questionnaire covered such information as gender, age, education level, and field of study, as well as the history of loss of first and second degree relatives or close friends and acquaintances during the last month (those cases whose response to this question was positive were excluded from the study), mental illness or psychological specific problems that need to be referred to the psychologist, acute family problems during the last month leading to unhappiness and anxiety for the person (those cases whose response to this question was positive were removed from the study), and mental illness or a specific psychological disorder (no positive response to this item).

The inclusion criteria were sophomore students onwards, willingness to participate in the study, and equal religious orientation of the participants (it should be noted that Muslim students were included in this study due to their larger population, and all the subjects chose Muslim in response to their religious affiliation). On the other hand, the students suffering from temporary physical problems on the exam day (no positive response to this item) and experiencing conditional pass (no positive response to this item), as well as those who took the same exam more than once and had a non-Muslim religious orientation (all cases had chosen a Muslim religious orientation) were excluded from the study.

## Instruments

### *Ryff's Scales of Psychological Well-being*

Ryff designed a self-report scale to assess her theoretical model, the first version of which included 120 items (28). In the following years, shorter versions with 40, 42, 24, 18, 14, 9, and 3 items were developed based on the psychometric properties of the scale. In the present study, an 18-item scale was used in which 3 questions were assigned to measure

each factor (n=6). The overall sum score of these factors (n=6) is calculated as the total score of psychological well-being. This test is a self-report assessment tool that is rated on a 6-point Likert scale from 1=strongly agree to 6=strongly disagree, in which higher scores indicate better psychological well-being. Out of the total questions, 10 and 8 items are scored directly and in reverse, respectively (score range: 18-108) (29). The correlation coefficients of this 84-item were obtained at 0.70-0.89 by Ryff and Singer (2008) (30). Moreover, Bayani, Koochekya, and Bayani (2008) conducted a study to evaluate the convergent validity of this scale. Therefore, they estimated the correlation of psychological well-being test using life satisfaction scale, Oxford Happiness Questionnaire, and Rosenberg Self-Esteem Scale at 0.47, 0.58, and, 0.46, respectively ( $P<0.001$ ) (31). In the present study conducted on 343 participants, Cronbach's alpha coefficients for the subscales of acceptance, positive relationships with others, autonomy, environmental control, purposeful living, and personal growth were determined at 0.74, 0.81, 0.79, 0.72, 0.84, and 0.74, respectively. Moreover, the correlation coefficient of the total scale was obtained at 0.78 using Cronbach's alpha.

#### ***Spielberger State-Trait Anxiety Inventory***

This 20-item inventory was devised by Spielberger (1980) and describes the person's reaction before, at the time, and after the exam. This inventory is a self-report assessment tool, and each participant responds to each item using a 4-point Likert scale of never, rarely, sometimes, and often. These options are rated on a scale of 1, 2, 3, and 4, respectively, (score range: 20-80), and the scores above 40 indicate test anxiety (32). Cronbach's alpha coefficient of this questionnaire was reported at 0.92 for male and female subjects, and the test-retest coefficient was estimated at 0.80 after three weeks and one month. The correlation coefficients of this inventory and Sarason's test anxiety scale (1981) in males and females were determined at 0.82 and 0.83, respectively, which is an indication of its proper validity (33). Moreover, the reliability of this scale in this

study on 343 participants was determined at 0.84 using Cronbach's alpha.

#### ***Allport's Religious Orientation Scale***

This 20-item questionnaire evaluates external (n=11) and internal religious orientations (n=9), and it is rated based on the Likert scale from 1=totally disagree to 5=totally agree. The scores ranged from 11 to 55 as well as 9 to 45 for external and internal religious orientations, respectively. In 1963, Feggin developed a 21-item version in which one option was added to all the items of the Allport's questionnaire. This added item showed a high correlation (0.61) with the external religious orientation, and this new questionnaire was used more frequently afterward (19). According to a study conducted by Alport (1968), the correlation between internal and external religious orientation items was determined at -0.21 (19). Several studies conducted from 1983 to 1995 (more than 140) reported a high and acceptable validity of this scale (34). In addition, the reliability of the questionnaire was determined at 0.76 using Cronbach's alpha in this study.

#### ***Implementation***

After obtaining the permission letter from the vice-chancellor, it was given to the relevant authorities for conducting the study. Subsequently, a brief introduction regarding the research importance and objectives was presented to each class in order to gain the students' attention for data collection. After reviewing the questionnaires (n=375), those with no or incomplete/careless responses (n=32) were excluded from the data collection procedure. Following that, data analysis and the assessment of descriptive indices were performed in SPSS software (version 25), and Lisrel software (version 8.8) was utilized for the structural equation modeling and confirmatory factor analysis. In the present study, the fitness of the model was evaluated using the root mean square error of approximation squares, normed fit index, confirmatory factor analysis, goodness-of-fit index, and adjusted goodness-of-fit index (35).

#### ***Ethical considerations***



The informed consent was obtained from the participants, and they were ensured about the confidentiality of their information and the fact that lack of response to the questionnaire had no effect on their test score, and they would not be harmed if no response was given to the items. They were also assured that they could be informed of the study results if interested. Furthermore, the study protocol was approved by the Ethics Committee of Biomedical Research in Bu-Ali Sina University, Hamadan, Iran (32-522).

**Result**

Based on the demographic characteristics, the majority of the participants were female (n=175; 51.1%). In total, 151 (44%), 112 (32.6%), and 80 (23.4%) participants were studying at the undergraduate level, professional doctoral, and specialized doctoral levels, respectively. The fields of the study included medicine (n=72; 21%), dentistry (n=40; 11.6%), midwifery (n=60; 17.5%), nursing (n=72; 21%), radiology (n=59; 17.3%), laboratory sciences (n=20; 5.8%), and anesthesiology (n=20; 5.8%). The mean±SD age of the students was estimated at 22.34±2.10 years (age range: 18-35 years). It should be noted that no positive response was given to the item about a history of mental illness or specific psychological problems that required a visit to a psychologist. Normality is a

significant assumption in parametric analysis, which can be examined using skewness and elongation statistics. Table 1 tabulates the results obtained from these tests.

According to the results of Table 1, parametric tests can be employed to evaluate the research hypotheses.

As can be observed in Table 2, there is a direct and linear relationship between the variables. Moreover, the Durbin-Watson test was used in order to check the independence of observations (independence of residual values or errors) from each other, the test statistic was obtained at 1.81. Therefore, the hypothesis of error independence was confirmed since the condition for the confirmation of this assumption is the test statistic values between 1.5 and 2.5 (36).

According to Table 3, the model fits the data. Therefore, regarding the first research question “Does the proposed structural model fit the data obtained from the relationship of test anxiety and psychological well-being with religious orientation”, one can conclude that the conceptual model of the study fitted the data collected in the present study. Figure 1 illustrates the structural model of the research.

The results of the Sobel test also confirmed the mediating role of internal (t=-2.86; P<0.01) and external religious orientations (t=2.89; P<0.01) in the relationship between test anxiety and psychological well-being.

Table 1. Mean±SD, skewness, and kurtosis of test anxiety, as well as psychological well-being, and religious orientation among medical students in Hamadan University of Medical Sciences, Hamadan, Iran

Variable	Mean± SD	Skewness	kurtosis
Test anxiety	62.81±4.81	-0.06	0.14
Internal religious orientation	35.12±7.81	0.07	-0.68
External religious orientation	29.22±4.98	-0.56	-0.45
Psychological well-being	84.07±12.55	0.29	-0.13

Table 2. Pearson correlation test results investigating the relationship between test anxiety and psychological well-being considering the mediating role of religious orientation among medical students in Hamadan University of Medical Sciences, Hamadan, Iran

Variable	1	2	3	4
1-Test anxiety	2			
2-Internal religious orientation	** -0.21	1		
3-External religious orientation	**0.22	** -0.23	1	
4-Psychological well-being	** -0.34	**0.38	** -0.23	1

\*\*P<0.05; \*P<0.01

Table 3. Model fit indices among the students in Hamadan University of Medical Sciences, Hamadan, Iran

Ratio of chi-square to the degree of freedom (x <sup>2</sup> /df)	Goodness of fit index	Adjusted goodness of fit index	Comparative fit index	Normed fit index	Root mean square error of approximation (RMSEA)
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2.84	0.92	0.91	0.94	0.91	0.052
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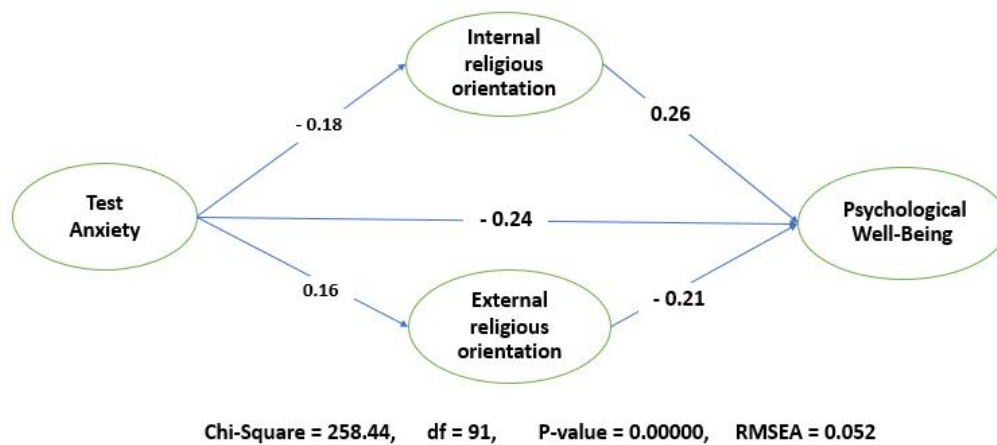


Figure 1. Structural model of psychological well-being, religious orientation, and test anxiety among students in Hamadan University of Medical Sciences, Hamadan, Iran

### Discussion

Based on the obtained results, the prediction model of psychological well-being based on test anxiety mediated by religious orientation showed a good fit. Psychological well-being is affected by the dimensions of test anxiety by the mediating role of religious orientation. Moreover, test anxiety negatively predicts psychological well-being. Findings related to the relationship between every two variables in this study were consistent with the results obtained from some previously conducted studies (15, 16, 22, 25, 26).

Hoferichter and Raufelder conducted a study on high-school students and showed that test anxiety was negatively associated with psychological well-being; in addition, this relationship was affected by different mediating variables (15). According to the results of a study conducted by McMaho and Biggs on the relationship between religious orientation and test anxiety on 89 psychology students, anxiety was not negatively correlated with internal religious orientation and had no significant relationship with an external religious orientation. However, the latter result was inconsistent with the findings of the present study (20) that can be attributed to the diverse manifestations of different religions in people. This can lead to differences in the findings of the studies investigating the relationship

between religious orientation and other psychological concepts.

Singh et al. investigated the relationship of the components of psychological well-being with internal and external religious orientation in 14-18-year-old Christian adolescents. The results indicated that internal religious orientation was positively correlated with psychological well-being, which was in line with the findings of the present study. However, there was no significant relationship between external religious orientation and psychological well-being (26), which was inconsistent with the findings of the present study. This inconsistency can be explained by the differences among people regarding the components of psychological well-being (i.e., personal growth and purposefulness) based on their religious orientation perception. Therefore, there is a difference between Muslim and Christian individuals in terms of perception. Based on the results of this study, psychological well-being is affected by test anxiety due to internal religious beliefs.

People suffering from excessive anxiety are prone to diseases that ultimately disrupt their mental balance and well-being (37). Anxiety is one of the problems that affect a large number of people, including university students. When individuals become anxious about their performance and ability in a test, they experience poor performance in this situation.

On the other hand, people with an internal religious orientation adopt a particular lifestyle and evaluate events as less harmful and intolerable. Moreover, these people do not lose their temper in confrontation with problems, rather they try to deal with them. People who have internalized religion feel that they have a secure refuge (38). Despite the fact that they suffer from traumatic anxiety in a test situation, they take advantage of this traumatic condition to have a more positive view of the situation, which modulates the cognitive components of anxiety and affects their overall performance. Accordingly, the psychological well-being of the individuals will be improved along with their general health in stressful situations, such as exams.

Moreover, people with an internal religious orientation have different perceptions of purpose in life. They communicate with others based on religious recommendations. They form an image of themselves through religious teachings and practices and will find personal growth in association with their religious practices (22). Therefore, it seems that they can better improve the components related to their psychological well-being and exercise more appropriate control over the external environment, and this enables them to control difficult conditions such as exams.

On the other hand, people with an external religious orientation exhibit religious behaviors with various motives, such as social approval, attainment of special privileges, and fear of being blamed by others. As a result, they are less adaptable to the various problems that arise in life and experience less peace; accordingly, religion has the least positive effect on them (37).

People with an external religious belief can have conflicting behavior towards everyone; however, they cannot be hypocritical in their private. Additionally, an artificial tendency towards religiosity with non-religious purposes will not help the individuals in difficult life situations, such as test anxiety. As a result, the person experiences low levels of psychological well-being in stressful situations, such as exams. Regarding the importance of religious orientation, measures should be taken to

recognize the orientation of the university students (as a predictor of anxiety) and identify students prone to test anxiety. On the other hand, it is necessary to utilize psychological interventions to adjust religious orientations considering the serious threats and opportunities in youth, as well as the positive and negative effects of internal and external religious orientations.

Currently, various researchers are making efforts to control test anxiety and promote people's religious beliefs; therefore, the results of this study can help individuals modulate the role of test anxiety and enhance psychological well-being. Given the moderating role of religious internal orientation in the reduction of test anxiety, it is suggested that educational and cultural planning be conducted with an eye to strengthening spiritual beliefs. The results of this study pave the way for investigating religious orientations among other people in stressful life situations. The previous studies revealed no significant relationship of anxiety with dormitory and non-dormitory students; accordingly, this variable was ignored in the present study (39). However, it is suggested that future studies be conducted considering the association of test anxiety with living conditions (dormitory and non-dormitory).

Regarding the limitations of this study, one can refer to the lack of diversity in the religious orientation of the subjects, which makes it difficult to generalize the results to the communities with different religions since religious orientation can be different based on the ethnic and religious background (40). Moreover, considering the fact that the present study was performed on medical students, the generalization of the results to the students of other fields of study should be carried out with caution.

## **Conclusion**

Internal religious orientation mediates test anxiety and promotes psychological well-being. However, external religious orientation is positively correlated with test anxiety and negatively associated with psychological well-being, which cannot help the individual to reduce anxiety in test situations. Considering

the importance of inner religious orientation, strengthening the religious belief system in students and familiarizing them with genuine and deep religious beliefs that are rooted in the inner needs of individuals pave the way for personal growth and purposefulness in life. Accordingly, one can control situational harmful factors, such as anxiety.

### Conflict of interest

The authors confirm that there is no conflict of interest regarding the publication of this study.

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## پیش‌بینی رابطه اضطراب امتحان و بهزیستی روان‌شناختی با توجه به نقش میانجی جهت‌گیری مذهبی در دانشجویان

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ابوالقاسم یعقوبی<sup>۱</sup>، اکبر عروتنی موفق<sup>۲</sup>، کامبیز کریمی<sup>۳\*</sup>، آفاق کریمی<sup>۴</sup>

<sup>۱</sup> گروه روان‌شناسی، دانشکده علوم اجتماعی و اقتصاد، دانشگاه بوعلی سینا، همدان، ایران.

<sup>۲</sup> گروه معارف اسلامی، دانشکده علوم انسانی، دانشگاه بوعلی سینا، همدان، ایران.

<sup>۳</sup> گروه روان‌شناسی، دانشکده علوم اجتماعی و اقتصاد، دانشگاه بوعلی سینا، همدان، ایران.

<sup>۴</sup> گروه فلسفه، دانشکده ادبیات و علوم انسانی، دانشگاه خوارزمی، تهران، ایران.

### چکیده

**سابقه و هدف:** اضطراب امتحان یکی از شایع‌ترین اضطراب‌ها در محیط آموزشی است که می‌تواند با بهزیستی روان‌شناختی در دانشجویان در ارتباط باشد. با در نظر داشتن نوع جهت‌گیری مذهبی افراد، این ارتباط ممکن است سمت‌وسویی متفاوت پیدا کند لذا هدف از پژوهش حاضر پیش‌بینی رابطه اضطراب امتحان و بهزیستی روان‌شناختی با تأکید بر نقش میانجی جهت‌گیری مذهبی بود.

**روش کار:** پژوهش حاضر، مطالعه توصیفی از نوع همبستگی بود و بر اساس مدل معادلات ساختاری انجام شد. جامعه آماری شامل، دانشجویان دانشگاه علوم پزشکی شهر همدان در نیمسال اول تحصیلی سال ۲۰۱۹ بود. با روش نمونه‌گیری خوشه‌ای تعداد ۳۴۳ دانشجو به صورت تصادفی انتخاب شد. داده‌ها از طریق پرسش‌نامه اضطراب امتحان اسپیلبرگر، مقیاس‌های بهزیستی روان‌شناختی ریف و باورهای مذهبی آلپورت، جمع‌آوری و با استفاده از آزمون همبستگی پیرسون، تحلیل عامل تأییدی و آزمون سوبل آنالیز شدند.

**یافته‌ها:** نتایج نشان داد که رابطه علی بین متغیرهای اضطراب امتحان، بهزیستی روان‌شناختی و جهت‌گیری مذهبی دارای برازش مناسب می‌باشد؛ به طوری که جهت‌گیری مذهبی درونی و بیرونی به ترتیب با بهزیستی روان‌شناختی رابطه مثبت و منفی دارند و هر دو بعد جهت‌گیری مذهبی نقش واسطه‌ای را بین اضطراب امتحان و بهزیستی روان‌شناختی ایفا می‌کنند.

**نتیجه‌گیری:** باتوجه به تأثیرات منفی اضطراب امتحان بر روی بهزیستی روان‌شناختی دانشجویان علوم پزشکی می‌توان گفت جهت‌گیری مذهبی در تعدیل این ارتباط نقش کلیدی دارد.

**واژگان کلیدی:** اضطراب امتحان، بهزیستی روان‌شناختی، جهت‌گیری مذهبی، دانشجویان.

\* نویسنده مسئول: کامبیز کریمی. ایمیل: kambiz.karimi90@gmail.com