Research Paper:
The Role of Spiritual Intelligence and Distress Tolerance on Coronavirus Anxiety in Students

Mohammad Mohammadipour1, Abdolreza Afzood2, Shadi Zolfaghari3*, Mojtaba Salmabadi4

1. Department of Psychology, Quchan Branch, Islamic Azad University, Quchan, Iran.
2. Department of Psychology, Bojnourd Branch, Islamic Azad University, Bojnourd, Iran.
3. Department of Clinical Psychology, Faculty of Psychology & Educational Sciences, Allameh Tabataba’i University, Tehran, Iran.
4. Department of Counseling, Faculty of Psychology & Educational Sciences, Allameh Tabataba’i University, Tehran, Iran.
5. Department of Educational Sciences, Faculty of Psychology & Educational Sciences, Farhangian University, Tehran, Iran.

* Corresponding Author:
Shadi Zolfaghari, PhD Student.
Address: Department of Clinical Psychology, Faculty of Psychology & Educational Sciences, Allameh Tabataba’i University, Tehran, Iran.
Phone: +98 (933) 8011294
E-mail: shadi_zolfaghari@atu.ac.ir

ABSTRACT

Background and Objectives: The widespread prevalence of Coronavirus Disease 2019 (COVID-19) has caused stress, anxiety, and worry in different groups, including students. Thus, this study aimed to determine the role of spiritual intelligence and distress tolerance in predicting COVID-19 anxiety in students.

Methods: This was a correlation and regression modeling (prediction) study. The statistical population of the study included all male students of Farhangian University of Shahid Bahonar Campus in Birjand City, Iran, in the academic year of 2020-2021. Accordingly, 260 individuals were selected by the convenience sampling method; they volunteered to participate in the study and virtually completed the King (2008) Spiritual Intelligence Questionnaire, Simon and Gaher (2005) Anxiety Tolerance Questionnaire, and Alipour et al.’s (2020) Corona Disease Anxiety Scale. Pearson correlation test and multiple regression analysis were employed in SPSS to analyze the collected data.

Results: The present study results indicated an inverse and significant correlation between distress tolerance (r= -0.666), spiritual intelligence (r= -0.618), and COVID-19 anxiety (P<0.01). Additionally, the achieved results revealed that spiritual intelligence (33.6%) and anxiety tolerance (38.8%) predicted the variance of coronary anxiety.

Conclusion: According to the collected results, by increasing the tolerance of anxiety and spiritual intelligence and their dimensions, students’ COVID-19-induced anxiety can be reduced. Therefore, in programs based on reducing COVID-19 anxiety, more attention to distress tolerance, spiritual intelligence, and its promotion in students seems necessary.
Introduction

Viral diseases are a serious public health issue. On December 31, 2019, a novel coronavirus was discovered [1]. The coronavirus rapidly spread around the world and complicated living conditions for most individuals. This is because the unprecedented rate of job loss, isolation, mortality, and infections caused by the Coronavirus Disease 2019 (COVID-19) continued to rise [2]. At a time when the world was in a state of crisis caused by COVID-19 and seemed to have brought the world to a standstill, a state of fear and anxiety developed in the world [3]. A severe COVID-19 leads to mental health problems, such as anxiety and stress in society [4]. Anxiety is a vague, unpleasant, and pervasive concern, associated with the physiological arousal of unknown origin [5]. Besides, COVID-19 anxiety is anxiety caused by being infected with the coronavirus, i.e., mostly due to unawareness and cognitive ambiguity about it [6]. Anxiety about getting sick or the fear of dying from the COVID-19 might lead to helplessness, despair, fatigue, burnout, negative emotions, as well as work-life and mental health imbalance [7].

Among the characteristics and abilities to cope with problems and improve health, distress tolerance can be mentioned [8]. Distress tolerance refers to the degree to which a subject can tolerate negative biopsychological states [9]. An integrated model of distress tolerance includes tolerance in the dimensions of uncertainty, ambiguity, failure, negative emotions, and physical discomfort [10]. Low levels of anxiety tolerance create a kind of impaired emotion regulation in the individual, leading to maladaptive behavioral responses to stressful conditions [11]. The tolerance of distress is an important framework in emotional and cognitive development as well as the prevention and treatment of behavioral problems and mental disorders [12]. In this regard, a study signified that individuals with health anxiety experience less tolerance for anxiety, compared to the healthy population [13]. Furthermore, evidence suggests that healthy intelligence is critical in managing stress, anxiety, and behavioral issues that can be important in chronic diseases [14, 15]. Spiritual intelligence is described as the ability to act rationally and compassionately, while maintaining inner and outer peace, regardless of circumstances; subsequently, enabling individuals to effectively manage stressful and anxious situations [16]. A set of mental capacities that contribute to consciousness, the integration and adaptive use of the immaterial and transcendent aspects of one’s existence lead to deep existential reflection, the reinforcement of meaning, the cognition of transcendent self, and the mastery of spiritual states [17]. Studies highlighted the role of spiritual intelligence in the death anxiety of COVID-19 patients [18]. Studies explored the role of spiritual intelligence in predicting perceived stress, anxiety, and depression in students [19], as well as the relationship between spiritual intelligence and anxiety (overt & covert) in students [20].

At present, due to the COVID-19 pandemic, changes in daily life are rapid and unprecedented, death rates are increasing, and the necessary measures to prevent the spread of this disease have increased in various parts of the world. Concurrently, have increased anxiety is very common. Few studies examined the predictors of have increased anxiety. Thus, this study aimed to determine the role of spiritual intelligence and distress tolerance in predicting COVID-19 anxiety in students.

Methods

This was a descriptive correlational study. The statistical population of the study included all male students of Farhangian University of Shahid Bahonar Campus in Birjand City, Iran, in the academic year of 2020-2021 (N=800). According to Gajrsi and Morgan’s Table [21], 260 subjects were selected by the convenience sampling method; they volunteered to virtually participate in the research. The applied data collection tools included the following:

King Spiritual Intelligence Scale: This 24-item scale was developed by King in 2008 to measure spiritual intelligence. This scale measures spiritual intelligence abilities in 4 main dimensions, including critical existential thinking (7 items), personal meaning (5 items), transcendent awareness (7 items), and the development of consciousness and self-awareness (5 items) based on a five-point Likert-type scale (completely agree = 1; completely disagree=5). The sum of the questions provides the overall score of spiritual intelligence, which ranges from zero to 96, and the high score indicates further spiritual intelligence. King reported Cronbach’s alpha coefficient of this questionnaire as 0.92; thus, its intra-item correlation equaled 0.34, its split-half reliability was measured as 0.91, and the test-retest reliability (4-month intervals) was calculated as 0.89. This questionnaire was correlated to psychological scales, such as the meaning of life questionnaire, life satisfaction scale, and emotional intelligence scale, which indicates the convergence validity of this questionnaire [22]. In Iran, Raghibi et al. supported its content and face validity and reported the reliability of Cronbach’s alpha coefficient of 0.89 and the test-retest method (of two weeks intervals) of 0.67 [23].
Simon and Gaheer Distress Tolerance Scale: This 15-item scale was generated by Simon and Gaheer in 2005, with 4 subscales, i.e., tolerance (3 items), attract (3 items), evaluation (6 items), and regulation (3 items) on a five-point Likert-type scale (completely agree: 1, completely disagree: 5); question 6 is scored in reverse. Accordingly, the scores range between 15 and 75; the higher scores on this scale indicate a greater distress tolerance. As per Simon and Gaheer, this scale presented a good and primitive convergence and criterion validity, and the reliability of Cronbach’s alpha coefficient for tolerance, absorption, and regulation subscales was computed as 0.72, 0.82, 0.78, and 0.70, respectively, and for the total scale to be 0.82 [24]. Azizi et al. confirmed its content validity and documented a high internal consistency for the whole scale (α=0.71). Besides, moderate reliability was reported for tolerance, absorption, evaluation, and regulation, respectively as 0.54, 0.56, and 0.58 [25].

Alipour et al.’s Corona anxiety scale: This 18-item scale was created by Alipour et al. in 2020; It measures the two subscales of mental symptoms (questions 9-1) and physical factors (questions 10-18) using a four-point Likert-type scale (zero: never; 3: always); thus, the scores range between 0 and 54 and a higher score indicates greater COVID-19 anxiety. As per Alipour et al., the content validity and the structural validity of the scale were confirmed by the factor analysis method and its reliability was computed by the Cronbach’s alpha coefficient for the subscale of psychological symptoms and physical factors were computed as 0.879, 0.871, and 0.919 for the whole questionnaire, respectively [6]. The questionnaires were distributed online. After identifying the students’ communication channels (Telegram, WhatsApp, and Instagram pages), the online questionnaire (this method was chosen due to quarantine restrictions when the COVID-19 risk became serious in Iran) was widely distributed. Necessary explanations, such as the purpose of the research, instructions on answering the questions, and the importance of volunteers’ cooperation in this research were provided in the supplementary text along with the questionnaire and individuals who voluntarily participated in this research. Additionally, all the ethical principles of the research, including the confidentiality of the questionnaires’ data, the informed consent of the participants in the research, and the right to leave the research, have been observed. The obtained

Table 1. The matrix of correlation coefficients between spiritual intelligence and distress tolerance with COVID-19 anxiety

| Variable                          | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  |
|-----------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1. Critical existential thinking  |     |     |     |     |     |     |     |     |     |     |     |
| 2. Presenting personal meaning   | 0.539** |     |     |     |     |     |     |     |     |     |     |
| 3. Transcendent consciousness    | 0.455** | 0.490** |     |     |     |     |     |     |     |     |     |
| 4. Development of state of consciousness | 0.170** | 0.173** | 0.268** |     |     |     |     |     |     |     |     |
| 5. Spiritual intelligence        | 0.751** | 0.754** | 0.771** | 0.572** |     |     |     |     |     |     |     |
| 6. Tolerance                     | 0.503** | 0.508** | 0.458** | 0.258** | 0.613** |     |     |     |     |     |     |
| 7. Absorption                    | 0.223** | 0.181** | 0.204** | 0.345** | 0.339** | 0.312** |     |     |     |     |     |
| 8. Evaluation                    | 0.389** | 0.456** | 0.526** | 0.258** | 0.570** | 0.588** | 0.301** |     |     |     |     |
| 9. Regulation                    | 0.419** | 0.479** | 0.450** | 0.196** | 0.539** | 0.526** | 0.332** | 0.470** |     |     |     |
| 10. Tolerance of distress        | 0.501** | 0.546** | 0.577** | 0.332** | 0.685** | 0.796** | 0.528** | 0.903** | 0.702** |     |     |
| 11. Corona anxiety               | -0.462** | -0.546** | -0.444** | -0.310** | -0.618** | -0.489** | -0.322** | -0.449** | -0.491** | -0.566** |     |
| Means±SD                         | 21.74±3.050 | 17.95±3.124 | 23.12±3.068 | 15.55±3.335 | 78.35±8.919 | 10.77±2.038 | 9.31±1.409 | 20.42±1.475 | 9.28±1.581 | 49.78±7.245 | 24.95±3.291 |

**Significance at the level of 0.01

Mohammadipour M, et al. Spiritual Intelligence and Distress Tolerance on Coronavirus Anxiety. Health Spiritual Med Ethics J. 2021; 8(2):95-102.
Results

Based on the obtained results, the Mean±SD age of the study sample was 20.4±3.47 years. Among the research sample, 80(31) individuals were undergraduate teaching students and 180(69%) were elementary undergraduate students. Furthermore, 64(24.7%) and 196(75.3%) study subjects were married and single, respectively. Table 1 lists the matrix of correlation coefficients between the research variables.

Table 1 reflects an inverse and significant correlation between distress tolerance (r=-0.666), spiritual intelligence (r=-0.618), and COVID-19 anxiety (P<0.01); thus, students with higher intelligence spirituality and distress tolerance manifested less COVID-19 anxiety.

Multiple regression analysis was used to predict COVID-19 anxiety through the spiritual intelligence variable. The Watson camera-statistic was used to examine the independence of the survivors. The value of the Watson camera-statistic was equal to 1.855; considering that its value falls in the range of 1.5 to 2.5, the presumption of independence of the survivors was observed. The normality of the distribution of scores was examined using the Kolmogorov-Smirnov test, i.e., provided the normality of the distribution of scores due to the insignificance of the obtained values (P<0.05). To investigate the existence of multiple alignments between the predictor variables, tolerance indices and Variance Inflation Factor (VIF) was used. According to the obtained deviation results from the multiple alignments, the assumption

| Variable                        | Not standardized coefficients | Standardized coefficients | t   | p    | R     | Modified R squared | The value of F | P    |
|---------------------------------|-------------------------------|---------------------------|-----|------|-------|-------------------|----------------|------|
| Fixed                           | 42.193                        | 1.435                     | 29.408 | <0.01 | 0.630  | 0.388             | 42.841         | 0.01 |
| Critical Existential Thinking   | -0.187                        | 0.064                     | -0.174 | -2.929 | <0.01  |                   |                |      |
| Provide personal meaning        | -0.378                        | 0.064                     | -0.359 | -5.935 | <0.01  |                   |                |      |
| Transcendent consciousness      | -0.147                        | 0.063                     | -0.137 | -2.341 | <0.05  |                   |                |      |
| Develop a state of consciousness| -0.192                        | 0.049                     | -0.194 | -3.883 | <0.01  |                   |                |      |

Table 2. The results of regression analysis to predict COVID-19 anxiety based on spiritual intelligence

| Variable                        | Not standardized coefficients | Standardized coefficients | t   | p    | R     | Modified R squared | The value of F | P    |
|---------------------------------|-------------------------------|---------------------------|-----|------|-------|-------------------|----------------|------|
| Fixed                           | 38.988                        | 1.318                     | 29.592 | <0.01 | 0.588  | 0.336             | 3.4374         | 0.01 |
| Tolerance                       | -0.357                        | 0.107                     | -0.221 | -3.322 | <0.01  |                   |                |      |
| Absorption                      | -0.277                        | 0.127                     | -0.118 | -2.182 | <0.01  |                   |                |      |
| Assessment                      | -0.127                        | 0.051                     | -0.161 | -2.513 | <0.01  |                   |                |      |
| Regulation                      | -0.541                        | 0.128                     | -0.260 | -4.217 | <0.01  |                   |                |      |

Table 3. The results of regression analysis to predict COVID-19 anxiety based on distress tolerance
was not observed. The F-value obtained for the regression model equalled 42.841, i.e., significant at $P<0.01$. This finding indicated that spiritual intelligence can well explain the changes related to COVID-19 anxiety, highlighting the appropriateness of the regression model.

According to Table 2, the multiple correlation coefficient between the independent variables and the dependent variable was equal to 0.630. Moreover, the value of the adjusted R-square was equal to 0.388, indicating that spiritual intelligence explained 38.8% of the variance of COVID-19 anxiety. Based on the obtained results, the components of spiritual intelligence included critical existential thinking ($P<0.01$, $\beta=-0.174$), personal meaning presentation ($P<0.01$, $\beta=-0.359$), transcendent awareness ($P<0.05$, $\beta=-0.137$), and the development of state of consciousness ($P<0.01$, $\beta=-0.194$) negatively predicted COVID-19 anxiety.

The multiple regression analysis was used to predict COVID-19 anxiety through distress tolerance. The Watson camera-statistic was used to examine the independence of the survivors. The value of the Watson camera-statistic was equal to 1.887; considering that its value falls in the range of 1.5 to 2.5, the presumption of independence of the residues was observed. The normality of the distribution of scores was examined using the Kolmogorov-Smirnov test, i.e., accepted as the normality of the distribution of scores due to the insignificance of the obtained values ($P=0.05$). To investigate the existence of multiple alignments between the predictor variables, tolerance indices, and VIF was used. According to the obtained deviation results from the multiple alignments, the assumption was not observed. The F-value obtained for the regression model equalled 34.437, i.e., significant at $P<0.01$. Accordingly, the distress tolerance can well explain the changes related to COVID-19 anxiety, suggesting the appropriateness of the regression model.

According to Table 3, the multiple correlation coefficient between the independent variables and the dependent variable was equal to 0.58. Additionally, the value of the modified R-square was 0.336, highlighting that spiritual intelligence explained 33.6% of the variance of COVID-19 anxiety. Based on the obtained results, the components of stress tolerance included tolerance ($P<0.01$, $\beta=-0.221$), absorption ($P<0.05$, $\beta=0.118$), evaluation ($P<0.05$, $\beta=-0.161$), and regulation ($P<0.01$, $\beta=-0.260$) negatively predicted COVID-19 anxiety.

**Discussion**

This study determined the role of spiritual intelligence and distress tolerance in predicting COVID-19 anxiety. There was an inverse and significant correlation between spiritual intelligence and coronary anxiety, i.e., students with higher spiritual intelligence expressed less COVID-19 anxiety. The collected results also suggested that the components of spiritual intelligence, including critical existential thinking, personal meaning presentation, transcendent awareness, and the development of a state of consciousness negatively predicted coronary anxiety. The obtained data were consistent with almost similar results in this field, e., the study of Safouraei Parizi et al., addressed a significant negative relationship between spiritual intelligence and COVID-19 death anxiety [18]. Mir Hosseini et al. documented that spiritual health and religious confrontation can predict death anxiety in patients with COVID-19 and strengthening the dimensions of spirituality can reduce anxiety death due to disease in patients with COVID-19 [26]. Furthermore, Fathi et al. revealed that the components of a health-promoting lifestyle and the components of spiritual growth and responsibility in health could predict COVID-19 anxiety [27]. As a result, individuals with higher spiritual intelligence have higher mental health for 3 reasons. First, religion creates a cohesive belief system that allows individuals to find meaning in life and hope for the future. In other words, spiritual beliefs allow subjects to rationalize the adversities, stresses, and inevitable losses that occur in life and be optimistic about the future with peace. Second, attending religious services provides social support for individuals. Third, spiritual beliefs are often associated with a healthier lifestyle [28]. Spiritual intelligence also creates meaning and purpose in life. Individuals with a sense of meaning and purpose in life better cope with crisis, and belief in God enables them to experience less psychological distress [29]. The system of spiritual beliefs also allows individuals to give meaning to the adversities, psychological pressures, and inevitable losses that occur during the life cycle and remain hopeful and optimistic about the future without such difficulties [30]. Also, when a subject needs the help of a counselor to cope with the stress of life, spiritual intelligence can help them to find meaning and concept in stressful situations; consequently, this coping can be described as an attempt to find meaning in stressful situations, like the COVID-19 pandemic [31]. Thus, the growth of spiritual intelligence creates a new perspective on ourselves and boosts self-confidence, and assists us to reduce our worries and anxieties.

Another finding of the study was an inverse and significant correlation between distress tolerance and coronary anxiety. Thus, students who have higher anxiety...
tolerance encounter less COVID-19 anxiety. Besides, the components of stress tolerance, including tolerance, absorption, evaluation, and regulation negatively predicted COVID-19 anxiety. These results were consistent with those of previous studies. For example, Salari et al. explored working women and reported a negative correlation between anxiety tolerance and COVID-19 anxiety and regression coefficients; distress tolerance was related to COVID-19 anxiety; regression coefficients showed that stress tolerance predicts coronary anxiety [32]. In this regard, the results of other studies suggested that individuals with high anxiety express less distress tolerance than the healthy population [13]. As a result, the ability to endure distress enables individuals to relieve their emotions and endure turmoil and stress in crises. Such conditions lead to the ability to face problems and solve them. In other words, individuals with emotional distress cannot control their emotions well in life-threatening situations (e.g. the coronavirus crisis) and solve problems, which facilitates exacerbating COVID-19 anxiety [32]. In other words, individuals with lower distress tolerance have difficulty regulating and controlling their emotions when exposed to stress, because they have less capacity to experience and resist emotional distress. Moreover, they are more prone to resort to maladaptive behaviors and strategies [33]. Therefore, individuals with high distress tolerance have a critical analytical mindset about their abilities and circumstances, can find different solutions to a particular situation or problem, use more appropriate coping strategies in stressful situations, and have higher resilience and flexibility. Therefore, they are more likely to adapt to different environments [8]. A limitation of the present study was its cross-sectional nature; thus, if longitudinal studies are performed, more accurate results can be obtained regarding the role of distress tolerance and spiritual intelligence in COVID-19 anxiety. Another limitation of this study concerned the sample size. Moreover, this study was conducted on students who were in the age range of 19 to 22 years, which limits the generalization of the obtained data to the whole society. As a result, it is suggested that this study be conducted in other groups, such as nurses, staff, and housewives, and older people. Considering the role of spiritual intelligence and distress tolerance, it is suggested that online training workshops be held to promote students’ distress tolerance and spiritual intelligence. It is also suggested that the role of other components such as resilience and optimism be studied in this population.

Conclusion

According to the current research data, by increasing the tolerance of distress and spiritual intelligence and their dimensions, students can reduce COVID-19 anxiety. Therefore, in programs based on reducing COVID-19 anxiety, more attention seems to be necessary to distress tolerance, spiritual intelligence, and its promotion in students.

Ethical Considerations

Compliance with ethical guidelines

This research was confirmed by the Research Ethics Committee of Birjand University of Medical Sciences (code: IR.BUMS.REC.1399.429).

Funding

The present study received no special grants of financing organizations in public, commercial or non-government sectors.

Authors’ contributions

All authors equally contributed to preparing this article.

Conflict of interest

The authors declared no conflict of interest.

References

[1] D’Amico F, Peyrin-Biroulet L, Danese S. Inflammatory bowel diseases and COVID-19: The invisible enemy. Gastroenterology. 2020; 158(8):2302-4. [DOI:10.1053/j.gastro.2020.04.032] [PMID] [PMCID]

[2] Lee SA, Jobe MC, Mathis AA. Mental health characteristics associated with dysfunctional coronavirus anxiety. Psychol Med. 2021; 51(8):1403-4. [DOI:10.1017/S003329172000121X] [PMID] [PMCID]

[3] Kumar A, Somani A. Dealing with Corona virus anxiety and OCD. Asian J Psychiatr. 2020; 51:102053.[DOI:10.1016/j.ajp.2020.102053] [PMID] [PMCID]

[4] Yehudai M, Bender Sh, Gritsenko V, Konstantinov V, Reznik A, Isralowitz R. COVID-19 fear, mental health, and substance misuse conditions among university social work students in Israel and Russia. Int J Ment Health Addict. 2020; July. [DOI:10.1007/s11469-020-00360-7] [PMID] [PMCID]
[32] Salari M, Bakraei S, Sharifnejad Nemat Abadi MA, Alizadeh N, Mohseni F. [Prediction of coronavirus anxiety based on anxiety tolerance and cognitive emotion regulation in employed women (Persian)]. J Appl Fam Ther. 2021; 1(4):38-52. [DOI:10.22034/AFTJ.2021.265361.1047]

[33] Bardeen JR, Fergus TA, Orcutt HK. Examining the specific dimensions of distress tolerance that prospectively predict perceived stress. Cogn Behav Ther. 2017; 46(3):211-23. [DOI: 10.1080/16506073.2016.1233454]