

## Assessment of Mental and Spiritual Health Among Iranian Dental Students: A Cross-Sectional Study

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### ABSTRACT

**Objective:** To investigate the relationship between mental health and spiritual well-being among general and post-graduate dental students. **Material and Methods:** This is a cross-sectional, descriptive-analytical study conducted on 268 general and post-graduate dental students. Data collection tools included the Mental Health Questionnaire (GHQ-28: General Health Questionnaire) and the Spiritual Health Questionnaire. The data were analyzed by the SPSS version 25 using Independent Samples t-test, One-way ANOVA, Pearson correlation coefficient, Multiple linear regression with a significant level at 0.05. **Results:** The total score of the Spiritual Health Questionnaire was  $71.48 \pm 0.507$  and the Mental Health Questionnaire was  $40.31 \pm 0.65$ . There was a significant difference in the spiritual health status between the general and post-graduate students ( $p=0.009$ ). Overall, there was a significant positive relationship between the students' spiritual health and mental health ( $p=0.045$ ), although a significant relationship was evident between mental health and age of the students ( $p=0.019$ ). **Conclusion:** The spiritual health was high in the dental students and Kerman University of medical sciences residents. Also, there was a positive significant relationship between spiritual and mental health.

**Keywords:** Students, Dental; Mental Health; Religion and Psychology; Behavioral Symptoms.

## Introduction

One of the most challenging points in various dimensions of health is spiritual health. Nowadays, the World Health Organization (WHO) refers to four dimensions of physical, mental, social and spiritual health, but considers spiritual health as the most substantial dimension in human growth and development [1,2].

Spiritual health provides one's integrity and correlates the physical, mental, and social dimensions, and if disregarded, it leads to mental disturbances, particularly depression. As a result, when the patient's spirituality increases, the speed of recovery also increases [3]. In general, spiritual health gives self-acceptance, positivity, morality, and a positive relationship with God created during the cognitive and emotional process and is used as a common way to unravel the problems [4]. In 2002, experts from WHO stated that mental health is a fundamental and essential need to improve the quality of human life, leading to harmonious communication with others, ameliorating the individual and social environment, resolving individual inspirations and conflicts rationally. Furthermore, mental health emphasizes the absence of mental disturbances and means the one's capability to adapt flexibly with various life conflicts, have a sense of self-worth, competitive capacity, and the authority to flourish potential abilities [5].

The degree of vulnerability and methods of dealing with the complications caused by mental problems will vary depending on the characteristics of individuals, which affects mental health. Religion is determined as a basic framework for proper development of spiritual health, of course, when it is well-considered [6]. Spiritual health is the incorporeal experience of man in two different areas: a) The theme of religious health that relates to the perception of health from God; b) The area of existential health that focuses on the social and psychological concerns of individuals. Existential health concerns the compatibility of individuals to society and the environment [7]. Some scholars cite two dimensions, vertical and horizontal, for spirituality. The vertical dimension reflects the spiritual communication with God. The horizontal dimension also reflects the connection of individuals to others or nature and internal connection [6].

In 2019, Forouhari et al. [8] studied the relation of religious orientation with anxiety and depression among college students and concluded that there is a weak relationship between religious orientation, mental anxiety and depression, which illustrates the knowledge of students about the advantages of religious orientation, so despite lack of scientific interests in psychological dimension and humanities, religion can provide a peaceful framework for mental health.

A previous study found a significant relationship between spiritual intelligence and mental health among science and art students. However, no significant difference was found between male and female students regarding spiritual intelligence and mental health [9]. Safayi Rad et al. [10] concluded on the close link between spiritual and mental health, noting that this link was more pronounced among female students and that religious belief helped promote mental health.

Byrd et al. [11] conducted a survey on individual, social, and institutional factors related to the degree of mental health of college students and concluded that there was a meaningful correlation between the level of mental health and students' spiritual health. Thus, spiritual health and general health have a significant relationship, and it is expected that the promotion of spiritual health will improve the general health of nursing students [12]. As such, students' spiritual health and physical, mental and social dimensions can improve the health of this important group.

It has been shown that the variable of gender has a significant relationship with the average score of spiritual health and students' spiritual health score was higher than their existential health score [13]. Rahimi et al. [14] concluded that students' spiritual health in Rafsanjan University of Medical Sciences is moderate

and there is no significant relationship between spiritual health and anxiety, as that spiritual health leads to a reduction in anxiety conditions.

Moghadam et al. [15] concluded that responding of the nursing students to spiritual needs has been identified as an important component of comprehensive nursing care. In this regard, nurses have a positive attitude towards spirituality and a desire to improve their level of spiritual health. Furthermore, Masoudi Asl et al. [16] reported that the condition of students of Tehran University of Medical Sciences was not appropriate in both components of spiritual health and mental health and a high percentage of students were suspected of having a disorder.

Medical and dental students are always susceptible to mental health disturbances because of the numerous stressors they encounter. Dental students have their own difficulties, including the psychological tensions of clinical settings and dealing with patients' issues. Therefore, believing in a higher sacred power greatly reduces the factors that threaten mental health. Many students are unfamiliar with the university environment upon arrival; also, new expectations and regulations, distance from family, economic problems, a large volume of courses, intense competition, etc., are among the conditions that can cause psychological issues and discomfort and seriously affect their efficiency [17].

Dental students, while having the problems of other students, also have their own conflicts, such as the psychological pressures of clinical environments and dealing with patients' issues as well as their concerns about post-graduation mandatory obligations. Also, the recent economic downturns and impressive inflation in our country affect the financial ability of the newly graduated dentists to establish a dental office, which could definitely lead to anxiety disorders in dental students. Moreover, due to the lack of similar studies in Iran investigating the correlation between mental health and spiritual well-being in dentistry students with their specific conditions, this study was conducted.

## Material and Methods

### Study Design and Sample

This cross-sectional and descriptive-analytical study was carried out on 350 general and post-graduate dental students of dentistry faculty of Kerman University of Medical Sciences selected by census sampling method. First, the list and number of all general and post-graduate students of each field were prepared separately from the vice chancellor for education office of the dentistry faculty. The total number of the students was 382 (332 general and 50 post-graduate), of which only 350 ones were tended to participate in our study. All of the general and post-graduate students of the faculty were included in the study except the non-Muslims and ones with no tendency for participation in the study. Exclusion criteria included students with acute medical or psychiatric disturbances, participants taking neuroleptics and antidepressants, students who had lost a loved one in the past six months, and participants who had gotten a divorce in the past six months.

### Data Collection

Data collection tools included a demographic information checklist (age, gender, marital status, degree and questions about consuming any neuroleptics and antidepressants, having any diagnosed mental disturbance by a psychiatrist and any recent mental trauma such as divorce, bereavement, etc.), Mental Health Questionnaire (GHQ-28: General Health Questionnaire) and Spiritual Health Questionnaire by Peplau and Perlman [18].

Students' questions were then carefully answered and they were given time to complete the questionnaires. The time allotted for completing each questionnaire was ten minutes and a total of twenty minutes were given to the students to complete the questionnaire [16].

The GHQ-28 is one of the screening tools used in the study of health problems, designed and developed in 1979 by Goldberg and Hiller [19]. GHQ-28 has been chosen as the main tool for screening mental disorders instead of DASS-21 for these main reasons: GHQ-28 has a wider variety of purposes (all psychiatric and non-psychiatric disorders) comparing to DASS-21 (Depression, Anxiety, Stress) and also GHQ-28 has more specificity (82.0%) and sensitivity (81.0%) compared to DASS-21 (specificity (70.0%) and sensitivity (71.5%)) [20]. GHQ-28 includes 4 areas of physical symptoms, anxiety and sleep disorders, social dysfunction and severe depression. Each area consists of 7 questions and the whole questionnaire includes 28 questions. The Likert method was used for scoring and each question gets a score between zero and 3. High scores in this test indicate a disorder and low scores indicate the absence of disease and proper mental health. In total, the score of each person in each field varies between 0 to 21 and in general between 0 to 84. In each area, students with a score between 0-6 are in the healthy group, 7-13 in the suspicious group, and 14-21 in the disturbed group [17,20]. The validity and reliability of the questionnaire have been reviewed and confirmed by Taghavi [21].

The Spiritual Health Questionnaire (SHQ) was introduced by Polutzin in 1982 [18] and later approved by Fatemi et al. [22]. This questionnaire has 20 questions, 10 of which measure religious health and the other 10 measure a person's existential health. The answers to the questions are grouped into 6-point Likerts, from strongly disagree to strongly agree. A score between 20 and 40 is poor spiritual health, between 40 and 70 is moderate spiritual health, and above 70 is strong spiritual health.

#### Data Analysis

Data were analyzed using SPSS software (IBM Corp., Armonk, NY, USA) version 25. Independent samples t-test, One-Way ANOVA, Pearson's correlation coefficient and multiple linear regression tests were applied. The significance level adopted was 5%.

#### Ethical Clearance

The project was approved as the ethics code of IR.KMU.REC.1397.204 in the Research Ethics Committee of Kerman University of Medical Sciences. Before distributing the questionnaire, the objectives and importance of the project were clarified to students and residents and informed consent was obtained from them. They were also informed that their information would be confidential.

#### Results

Out of 350 questionnaires, only 82 questionnaires (23.4%) were not considered in the study. The exclusion was either the questionnaire was incomplete or all 28 items of GHQ-28 and 20 items of SHQ were not completed in all respects. Moreover, the participants with any exclusion criteria in the demographic questionnaire were also excluded from the study. Among the 268 participants, 67.2% were females and 32.8% were males. There were 232 participants at the pre-graduate level and 36 at the post-graduate level. Most participants were single (91.4%) in terms of marital status. The mean age of participants in the pre-graduate and post-graduate levels were  $22.5 \pm 0.232$  and  $26.11 \pm 0.433$ , respectively (Table 1).

**Table 1. Sample distribution according to demographic information.**

Gender	Educational Level			NRQ*	Marital Status			Total	NRQ*
	General N (%)	Post-graduate N (%)	Total N (%)		Single N (%)	Married N (%)	Divorced N (%)		
Female	160 (88.9)	20 (11.1)	180 (100.0)		169 (93.9)	9 (5.0)	2 (1.1)	180 (100.0)	
Male	71 (82.6)	15 (17.4)	86 (100.0)		74 (87.1)	10 (11.8)	1 (1.2)	85 (100.0)	
Total	231 (86.8)	35 (13.2)	266 (100.0)	2 (0.7)	243 (91.7)	19 (7.2)	3 (1.1)	265 (100.0)	3 (1.1)

NRQ: Not Responded Questionnaire.

The total score of the SHQ was  $71.48 \pm 0.507$ , which indicates that students and residents have high spiritual health. The total score of the GHQ-28 was obtained in four areas, corresponding to  $40.31 \pm 0.65$ . The results showed that the participants in three areas of physical symptoms, anxiety, sleep disorder were in the suspected group, and in the field of depression were in the borderline group.

The results demonstrated that the spiritual health status was significantly different between general dental students and residents ( $p=0.009$ ), as the dental students had higher spiritual health (Table 2). Although there exists a significant correlation between age and mental health ( $p=0.019$ ), no significant difference was evident between the mental health of participants with gender ( $p=0.221$ ), educational level ( $p=0.75$ ) and marital status ( $p=0.675$ ) (Table 2).

**Table 2. Comparison of participants' spiritual well-being and mental health by demographic factors.**

Variables	Spiritual Well-Being			Mental Health		
	Mean	SE	p-value <sup>(1)</sup>	Mean	SE	p-value <sup>(1)</sup>
Gender						
Female	72.09	0.64	0.094	66.49	0.93	0.221
Male	70.27	0.83		68.43	1.21	
Educational Level						
General	71.93	0.55	0.009**	66.91	0.81	0.75
Post-Graduate	68.49	1.14		67.63	1.98	
Marital Status						
Single	71.65	0.53	0.285	67.00	0.79	0.675
Married	68.68	1.76		65.74	2.85	
Divorced	77.33	2.85		72.00	3.51	
Age			0.664			0.019**

SE = Standard Error; <sup>(1)</sup>t-test.

The data showed a considerable relationship between spiritual health and mental health of students. As such, with increasing spiritual health, mental health increases ( $p=0.045$ ). Additionally, there was a statistically significant relationship between spiritual health, gender and age of students with mental health. Moreover, female students showed more mental health than male students ( $p=0.013$ ). Also, with increasing age, less mental health was seen in students ( $p=0.035$ ). There was also a significant relationship between spiritual health and education and with increasing the level of education, spiritual health decreases ( $p=0.021$ ). Table 3 shows that existential health is higher in female students and also general students have higher religious health than post-graduate students. Also, Table 3 illustrates that there is no significant relationship between different areas of mental health with gender, educational level and marital status.

**Table 3. Comparison of spiritual and mental health scores in terms of gender, educational level and marital status.**

Variables	Gender		Educational Level		Marital Status		
	Female	Male	General	Post-graduate	Single	Married	Divorced
Religious Health	21.96±0.37	21.72±0.49	22.09±0.32	20.41±0.58	21.91±0.31	21±0.77	24±3.61
p-value	0.699		0.056		0.552		

Existential Health	28.61±0.54	26.96±0.62	28.21±0.46	27.09±0.83	28.11±0.44	26.67±1.21	34.5±1.5
p-value	0.068		0.363			0.259	
Spiritual Health	50.59±0.67	48.54±0.91	50.25±0.6	47.57±1.19	49.97±0.57	48±1.88	57.5±4.5
p-value	0.081		0.104			0.303	
Physical Signs	10.87±0.25	10.49±0.39	10.72±0.23	11.03±0.59	10.74±0.22	10.83±1.01	10.67±0.67
p-value	0.409		0.632			0.993	
Anxiety Signs	10.74±0.36	11.24±0.5	10.89±0.31	11±0.79	10.89±0.3	10.89±1.2	11.33±1.76
p-value	0.416		0.901			0.986	
Sleep Disorders Signs	12.03±0.28	12.1±0.33	12.12±0.24	11.69±0.51	12.06±0.23	12.11±0.83	12.33±2.91
p-value	0.887		0.494			0.989	
Depression Signs	6.49±0.39	7.36±0.5	6.75±0.34	7.06±0.79	6.91±0.33	4.74±0.78	9.67±4.1
p-value	0.189		0.737			0.109	
Mental Health	40.1±0.83	40.62±1.04	40.24±0.69	40.81±1.92	40.21±0.69	40.35±2.24	44±3.51
p-value	0.709		0.766			0.815	

## Discussion

Spiritual health is the newest attractive dimension of health that should be considered alongside physical, mental and social health. This study highlights a mean score of 71.48 for spiritual health and shows that dental students and residents in Kerman are at a high level in terms of spiritual health.

In a religious city like Kerman, this factor can be effective in educational settings. These results are similar to the spiritual health status of nursing students in Qom [23]. In this context, Masoudi Asl et al. [16] and Mostafazadeh and Asadzadeh [24] concluded that the spiritual health status of paramedical and midwifery students was moderate.

The data analysis in this investigation does not present significant differences between gender and spiritual health among study participants. However, several authors [13,25-27] reported that spiritual health was significantly higher in female students than males, which can be related to girls' adaptability to various conditions than boys. Furthermore, some authors [16,28-30] suggested that there was no considerable difference regarding male and female students in terms of spiritual health, but girls' scores are more than boys in terms of spiritual health.

Our results did not give any meaningful difference between marital status and spiritual health among general and post-graduate students. However, Rahimi et al. [14] reported that marital status plays an important role with spiritual health, but married people had higher spiritual health scores. Thus, our results are similar to Rahimi et al. [26], and Rahman et al. [31] regarding anticorrelation between marital status and spiritual health were obtained.

Our study shows no significant relation concerning mental health and marital status, while Rahimi et al. [26], found that married people had higher mental health. This may be related to the fact that married people can cope better with problems due to sympathy and companionship with their spouses. Another important point in our study is concerned with a well-defined correlation between educational level and spiritual health status. This indicates that general students had significantly higher spiritual health than post-graduate students. This result is inconsistent with Masoudi Asl's study [16] that with increasing the educational level of students, their tendency to improve spiritual health increased, even though Ziapour et al. [13] disagreed with the abovementioned interpretations. However, Khodaveisi et al. [12] observed a significant relationship between spiritual and general health of nursing students. Regarding post-graduate students, this is because they are concerned about their obligations after the end of the study period and under more academic and work tensions during their study. It may also be said that the moral values and norms have diminished during their studies, and as a result, post-graduate students are paying less attention to this point.



Also, due to the low age range of the participants in the current study, there was no notable relation between age and spiritual health. However, there was an important relationship between students' age and mental health. Post-graduate students have less mental and spiritual health than the general students, which can be related to the greater impact of environmental, social, and educational effects on residents' insight, attitude, perception, psychological and spiritual factors. However, Ziapour et al. [13] and Khodavisi et al. [12] found no interrelation between age and spiritual health. On the contrary, Samiari et al. [32], Khodabakhshi and Jafari [33], Heravi-Karimooi et al. [34] and Hsiao et al. [2] in Taiwan reported a positive correlation in terms of spiritual intelligence and general health.





According to the data analysis, students who have more spiritual health also have better mental health. Also, Ghonchepour et al. [35] and Farshadnia et al. [36] agreed that there is a positive relationship between spiritual health and self-efficacy in university students. This is because they have a closer relationship with God, have a more positive feeling and attitude towards their life and future, and rely on God in all areas of their lives. This makes them more efficient in society and their increased compatibility to cope with conflicts and tensions of the education period [37].

Regarding religious health and existential health, our results showed that the existential health of students was higher than their religious health, and this point supports the results of Masoudi's study [16]. Overall, among the areas of students' mental health in sleep disorders, more people were in the suspected group. Therefore, social networks can lead to sleep disorders and the impact of cyberspace and social networks on spiritual health is also clearly visible.

## Conclusion

This study highlights that dental students and residents of Kerman Dental School have high spiritual health. Furthermore, general dentistry students had higher spiritual health compared to the post-graduate students. In addition, sleep disorders displayed the maximum score among the areas of mental health, but depression had the minimum score. There was also a positive link between spiritual health and mental health; thus, it is proposed that by promoting the spiritual health of students and residents, their mental health and, as a result, their personal, social and professional performance can be increased.

## Authors' Contributions

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All authors declare that they contributed to critical review of intellectual content and approval of the final version to be published.			

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## Conflict of Interest

The authors declare no conflicts of interest.

## Data Availability

The data used to support the findings of this study can be made available upon request to the corresponding author.

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