

Original Article



Explaining medical students' perceptions about the impact of spiritual health on learning the course of endocrine physiology- a content analysis study

Mohammad Hadi Elahimanesh¹, Zahra Gorjian², Sajedeh Mousaviasl², Maryam Ban², Esmat Radmanesh^{3,4}

¹Student Research Committee, Abadan University of Medical Sciences, Abadan, Iran

²Department of Nursing, School of Nursing, Abadan University of Medical Sciences, Abadan, Iran

³Religion, Health and Technology Studies Center, Abadan University of Medical Sciences, Abadan, Iran

⁴Department of Medical Physiology, School of Medicine, Abadan University of Medical Sciences, Abadan, Iran

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Abstract

Background: Spiritual health has been considered for a long time. In this study, we aimed to explain medical students' experiences of the relationship between spiritual health and the course of endocrine physiology.

Methods: This qualitative study was conducted on 20 Abadan University Medical Sciences medical students who had taken the course of endocrine physiology in the first semester of the academic year 2024. Through a semi-structured interview, four general questions were asked of the students regarding the impact of spiritual health and learning in the physiology course. This interview was analyzed using Graneheim qualitative analysis method.

Results: By examining the interviews qualitatively, it was determined that the relationship between spiritual health and learning the physiology of endocrine glands in medical students had two main categories: 18 subcategories and 52 codes. The main categories included the effects of spiritual health on life, and spiritual health and learning in the physiology course. The subcategories included peace, satisfaction with life, patience and the ability to tolerate problems, motivation, joy and hope, a sense of security and strength, reducing stress and anxiety, purposefulness in life, growth and improvement, better problem-solving and decision-making, improving morality and reducing negative energy, mental and physical health, order in life, a desire to study more, improving lesson planning, increasing concentration and learning, increasing memory power, understanding the order of creation, physiology is a lesson in theology, and thinking about creation.

Conclusion: The results of the present study showed that spiritual health increases peace and satisfaction with life, hope, and joy, and reduces stress, anxiety, and negative energy. As a result, spiritual health increases concentration, memory power, and better learning of the course of endocrine physiology. Therefore, it is recommended that more attention be paid to the spiritual health of students in educational systems.

Introduction

Spiritual health is an integral part of an individual's health. Among medical students and professionals, spiritual health has positive effects on the individual by reducing burnout, psychological distress, and substance abuse rates. Education and its relationship to spiritual health should not be overlooked.¹ Along with the increasing awareness of the spiritual dimension of health, there has been a growing desire in some fields to include spirituality in medical education and research. This is part of a broader movement from a biomedical approach toward holistic medical education, in which spirituality

is expected to play a more important role.² Studies have shown the importance of spiritual intelligence and lifestyle in students' life satisfaction. Administrators and policymakers can use these findings to design interventions and provide a context for improving students' life satisfaction.³ Professional medical organizations have developed competencies for medical students that include understanding how a patient's religious/spiritual beliefs may affect their health.⁴ Convergence Education of Medicine and Theology (CEMT) is an effective model for learning religious education. Even with the differences between the disciplines, there is a reinforcing relationship

*Corresponding author: Esmat Radmanesh, Emails: esmatradmanesh33@gmail.com, e.radmanesh@abadanums.ac.ir

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between medicine and theology.⁵ The results suggest that medical students who received spiritual care training demonstrated greater self-efficacy than those who received conventional training. These results reinforce the importance of promoting spirituality education in medical schools.⁶

Physiology is the branch of science that studies the laws and regulations of vital activities at the molecular, cellular, and organ system levels and is inherently an applied discipline. Physiology is essential to university degrees that prepare students for careers in medicine, nursing, biomedical research, public health, and dentistry. Clinical medical students generally begin the study of physiology at the beginning of their medical school, which lays the foundation for subsequent courses in pathophysiology, pharmacology, diagnostics, and internal medicine. Thus, physiology bridges basic and clinical medicine and is the cradle of education for future physicians and medical scientists. Reforming physiology education is crucial to improving the quality of teaching and supporting student learning.⁷⁻⁹

Studies on the relationship between spirituality and education are insufficient. There are no studies on spiritual health and medical education, especially in basic science courses, including physiology. It is also unclear how and to what extent medical schools implement the integration of religion/spirituality in medical education in their curricula. This study aims to explain medical students' experiences of the relationship between spiritual health and the endocrine physiology course of medicine at Abadan University of Medical Sciences in southwestern Iran.

Methods

This qualitative study was conducted with the participation of medical students at Abadan University of Medical Sciences. The medical students were selected using purposive sampling, a conscious selection method by the researcher. In this method, the participants were selected by the researcher, and these selected participants were rich in the desired information. In this study, students who had taken the endocrine gland physiology course at the Faculty of Medicine of Abadan in the first half of the academic year 1402-1403 were selected for interviews. The number of study participants was determined based on data saturation. Data saturation is the point in research when enough data has been collected to conclude, and further collection no longer adds valuable insights.

Data collection method

The semi-structured interview method was used at this stage, and the opinions of the medical students were written down.

The interview included five open-ended topics.

- Express your opinion about the physiology course in general.

- Express your opinion about the spiritual connection with the One God and its effect on life satisfaction.
- Talk about the peace of mind due to the connection with God at different stages of your life.
- Express your opinion about the effect of the spiritual connection with God and its effect on learning the physiology course.
- Express your opinion on the relationship between the order of human creation and learning physiology.

The researcher introduced himself and explained the study's objectives, inviting participants to participate in the interview. Before each interview, written and verbal consent was obtained from the participants to participate in the research and to be audio-recorded. The participants were assured that the information would remain confidential.

Data analysis method

To analyze the qualitative content of the data obtained from the interviews, the content of the qualitative data was analyzed using the Graneheim content analysis method. The Graneheim method was based on the perceptions and understanding of the text, and meaningful units were identified and compressed to assign codes to them. Then, by removing similar and repetitive codes and merging overlapping codes, they were categorized and then classified and sub-classified based on the quality of the codes. Qualitative content analysis revolves around key concepts such as the unit of analysis, unit of meaning, compression, content area, codes, categories, and topics. The unit of analysis indicates the space allocated to a specific topic or action. A unit of meaning consists of related words or sentences that can be categorized based on their similarities. Compression involves shortening text while maintaining its essential meaning. The content area refers to the parts of the text relevant to the research topic. Codes are labels assigned to meaningful segments of text, which are then organized into categories based on shared features. The main goal of qualitative content analysis is to create these categories and themes by identifying meaningful units and assigning codes accordingly. Overlapping codes are combined, and duplicates are removed, with final categorization conducted using insights from the data. In applying the Graneheim method to interview data, a systematic approach to classification and coding helps identify targeted solutions.¹⁰

Scientific accuracy and validity of findings

To ensure the accuracy of the research findings, the study considered four criteria: validity, reliability, transferability, and confirmability, as proposed by Strobart and Carpenter. The researchers implemented several methods to guarantee that the findings accurately represent the participants' experiences.¹¹

Data validity was established by having participants review the manuscripts, as well as through a peer review

conducted by the research team, which consisted of experts in qualitative research. Reliability was maintained by thoroughly documenting all activities related to data collection and analysis, and by providing excerpts from the interview transcripts for each category.

To achieve transferability, the extracted categories were shared with individuals who were not involved in the research. This allowed them to determine the similarities between the research results and their own experiences. Lastly, to enhance confirmability, the text from selected interviews, along with codes and extracted categories, was shared with colleagues experienced in qualitative research, but who had no direct involvement in this study.¹¹

Ethical considerations

The researcher began by introducing himself and outlining the objectives of the study, inviting participants to take part in the interview. Before each interview, participants were asked to provide both written and verbal consent to participate in the research and to be audio-recorded. They were assured that the audio files would be kept confidential and stored securely. The interviews took place in a private, quiet room to ensure comfort and focus.

Results

Twenty medical students who had taken the endocrine physiology course participated in this study. Of these, 8 were female (40%) and 12 were male (60%). The mean age of the participants in the present study was 21.20 ± 2.26 years. 19 (95%) of the participants were single. All participants were of Iranian nationality, and their religion was Islam, and they were Shia.

Categories and subcategories

In this study, the main categories were extracted based on qualitative analysis from students who had taken the course of endocrine physiology, and 52 initial codes were found. Similar codes were merged and grouped in different subcategories, and 18 subcategories were created. Similar subcategories were merged, and 2 main categories were formed: the effects of spiritual health in life and spiritual health and learning of the physiology course. Each of the categories has subcategories, which are explained below. Complete information is given in [Table 1](#).

The effects of spiritual health on life

Medical students participating in the study expressed their experiences about the effects that their connection with God had on their lives, which include several subcategories. This category includes 12 subcategories and 42 codes. The subcategories include peace, satisfaction with life, patience and the ability to endure problems, motivation, joy and hope, a sense of security and strength, reduced stress and anxiety, purpose in life, growth and advancement, the ability to solve problems and make better decisions, improving morality and reducing

negative energy, mental and physical health, and order in life, which are explained below.

Peace

The participants in the study expressed their experiences with the impact of communication with God and the subcategory of peace as follows:

"Talking to God makes me feel more peaceful. I feel like my whole soul is great. I always take time and talk to my God in general" (Participant 1).

"God is great, strong, God is unique, the giver of peace to my life, the giver of peace and direction to my dreams, he is the power and glory of my life. I feel like I can achieve all my dreams" (Participant 3).

"When I think of God, I feel good and I feel empowered, and my potential for performance increases" (Participant 4).

"God's presence creates a strong companionship for me with mental and emotional peace" (Participant 6).

"Connecting with God at all stages of life brings mental peace and makes us go about our affairs more easily and with a calm mind" (Participant 8).

"Relying on God brings mental balance and peace, meaning that we can still smile amidst all these problems because we have the certainty that there is a God who guides us" (Participant 16).

"If someone has a good spiritual connection, their mind and soul will be more peaceful" (Participant 19).

Satisfaction with life

Participants in this study expressed their experiences regarding the impact of communication with God and the subcategory of life satisfaction as follows:

"Communication with God increases my peace of mind. Therefore, I face problems with peace of mind and am more satisfied with my life" (Participant 1).

"The impact of this communication with God on life satisfaction is felt; the greater the communication, the greater the level of life satisfaction" (Participant 2).

"Communication with God makes life easier, and we are more satisfied with life" (Participant 8).

"The greater the communication with God, the greater the satisfaction with life because there is an interaction between knowledge, faith, and behavior. The more we believe in God, the more this effect is reflected in our behaviors and lives" (Participant 12).

Patience and the ability to endure difficulties

"The stronger the connection with God, the more we can endure and solve difficulties" (Participant 2).

"I no longer see problems as big and I do not despair, and I find peace in the remembrance of God" (Participant 17).

"Communication with God has strengthened my spirit and hope. I am not afraid of anything and am ready to face all my problems" (Participant 9).

Table 1. Categories, subcategories, and codes extracted from interviews

Main category	Subcategory	Codes
The effects of spiritual health on life	Peace	Connection with God brings peace of mind. Soothing and guiding dreams. Facing issues with more peace. A firm companion with mental and emotional peace. Moving forward with ease and more peace. A calmer mind and soul with a spiritual connection.
	Satisfaction with life	Relationship with God brings greater satisfaction from life.
	Patience and the ability to endure difficulties	Increased tolerance for problems Readiness to face problems Minimizing problems
	Motivation, enthusiasm and hope	Communication with God increases joy and hope. The greater the connection with God, the greater the hope for life. God is the God of desires. Maintaining morale in the worst of life's circumstances From you, movement from God, blessings
	Feeling of security and strength	Connecting with God makes you feel safe and strong. God is the best friend and companion. Connecting to the greatest and most invincible power in the world God is always a helper, be with God and reign. God is a safe support. Seeking help from God gives a person confidence in their heart and spiritual strength. God is a kind friend and supporter. God is always with man. Giving strength to man Feeling more powerful in the words
	Reduce stress and anxiety	Reducing stress and worry by turning to God Getting away from sorrows By turning to God, every worry is forgotten.
	Purposefulness in life	It has given direction to life. Becoming purposeful and avoiding emptiness
	Growth and advancement	A relationship with God leads to human growth and excellence. A relationship with God makes life better and better every day.
	Better problem-solving and decision-making skills	Trusting in God increases the power to solve problems. Making Better Decisions by Trusting in God
	Improving morals and reducing negative energy	Reduces anger and hatred. Avoiding self-interest Lifestyle modification Removing negative feelings and energies
	Mental and physical health	Communication with God causes the human body to be in its best physical condition. Feeling of mental and physical health Trust in God brings about mental balance.
	Order in life	Communication with God brings order to life.
	Eager to study further	Discovering the order and mystery of human existence in physiology lessons increases enthusiasm for studying.
	Improving lesson planning	Trusting in God improves lesson planning.
Spiritual health and learning physiology	Increase concentration and learning	Understanding and comprehension of physiology lessons is enhanced by a calm mind brought about by the remembrance of God. A strong connection with God increases concentration and learning.
	Increase memory power	Spiritual health increases memory power.
	Understanding the order of creation	Depicting God's Power in the Unique Order of the Human Body in a Physiology Lesson Faith in God becomes stronger by better understanding the order of human creation in a physiology lesson.
	Physiology is the science of theology and thinking about creation.	Physiology shows the existence of God, His power, and His greatness. Physiology is one of the most beautiful ways to examine the creation of man. Reaching a higher understanding of the world through experience and comprehending the lessons of physiology

Motivation, joy, and hope

“Communication with God increases hope for life, joy, and hope in small and big issues of life” (Participant 3).

“The stronger the connection with God, the more hope we have in life” (Participant 2).

“God is the God of hearts, the God of desires. By surrendering our hearts, even in His name, great peace flows into our lives” (Participant 3).

“Truly, when we pray with all our problems and worries, we find ourselves in front of the greatest power in the world, which is why we forget every worry by turning to God” (Participant 5).

“Belief and connection with the One God make a person have hope in his life and not lose his spirit even in the worst circumstances, and take steps towards his goals” (Participant 9).

"Spiritual connection with God makes a person have hope in his life. God is blessing him, and we will see this wonderful effect in life regularly" (Participant 10).

"God gives peace to my soul. I pray and feel that I am in the best condition in the world" (Participant 1).

Feeling of security and power

"I always feel God's presence next to me, and it makes me feel safe. It makes me feel powerful" (Participant 6).

"The great and exalted God is the best companion and friend for us in life" (Participant 6).

"When facing problems and difficulties, by praying to God, we connect ourselves to the greatest and most invincible power in the world" (Participant 7).

"The constant connection, remembrance, and presence of God has always helped us on our way. Be with God and reign" (Participant 11).

"I know that God is my safe support, He is by my side and He gives me a sense of needlessness" (Participant 2).

"Seeking help from God's infinite power gives a person confidence in their heart and spiritual" strength" (Participant 3).

"At every stage of life, having a connection and trust in God as a kind friend and protector brings peace and encouragement" (Participant 5).

"I see God as a friend who is always by my side" (Participant 5).

"God has created a strange strength in me" (Participant 6).

"The more I connect with God, the better my spiritual state becomes, and I even feel more powerful in my words" (Participant 20).

Reducing stress and anxiety

"When I reach a dead end, I surrender myself to God, and stress and worry are greatly reduced" (Participant 14).

"I pray during prayers and feel that I am in the best condition in the world, as if I am free from the sorrows of the world" (Participant 1).

Purposefulness in life

"Communication with God has caused my life to take direction and grow" (Participant 8).

"Communication with God and remembering God have given my life purpose and saved me from emptiness" (Participant 11).

Growth and development

"God is a provider, a helper, and He gives direction to our lives, helping us grow and excel" (Participant 20).

"Communication with God at all stages of life has made my life better every day and every day" (Participant 8).

Better problem-solving and decision-making

"Communication with God has increased my physical

and mental strength and allowed me to think and solve problems better. This problem-solving has helped me solve my life's problems" (Participant 10).

"A person will always make better decisions in the shelter of peace that comes from trusting in God" (Participant 13).

Improving morals and reducing negative energy

"I always maintain this inner peace, and my morals are much better, and even if I want to, I cannot get angry or hateful. I believe the reason for this is God entering my heart" (Participant 8).

"Staying away from self-interest, trusting in God, delegating matters to God, enduring hardships, avoiding self-centeredness, and reforming my lifestyle are among the great and supernatural effects of communication with God" (Participant 14).

"Meditation and gratitude make all bad feelings and energies go away from me, and I get closer to God" (Participant 18).

Mental and physical health

"After praying, I feel that my body functions at its best. My blood pressure is balanced and my pulse beats well" (Participant 6).

"I feel that my whole soul is great. I always take time and talk to my God, God calms my soul. When I pray, I feel like I am in the best state" (Participant 1).

"Communication and trust in God bring psychological balance" (Participant 15).

Order in life

"Communication with God brings great effects, including order, and our life becomes orderly" (Participant 12).

Spiritual health and learning in physiology

Medical students participating in the study expressed their experiences with the category of spiritual health and learning in physiology, which includes several subcategories. This category includes 6 subcategories and 10 codes. The subcategories include the desire to study more, improving lesson planning, increasing concentration and learning, increasing memory power, understanding the order of creation and physiology, theology, and thinking about creation, which are explained below.

Desire to study more

"Studying this lesson to discover the order, mystery, and structure of existence increases the desire to study it" (Participant 18).

Improving lesson planning

"The peace that comes from trusting in God helps overcome stress and also improves lesson planning"

(Participant 5)".

Increased concentration and learning

"Because our mental peace increases with spiritual connection, our focus on studying increases, which leads to the growth of knowledge, and we can study this lesson more to deepen our understanding" (Participant 3).

"The mental peace received from remembering God causes concentration and increased accuracy, and as a result, better learning" (Participant 11).

Increased memory power

"Spiritual connection with God increases memory power" (Participant 3).

Understanding the order of creation

"All components and particles of the universe have a specific order and pattern, and physiology is no exception to this, and this order is created by a great order-giver, namely God. This lesson depicts the order of the body" (Participant 1).

"The more physiology lessons are studied, the better the order of human creation is understood, and ultimately the stronger the faith in God becomes. Because He is the Creator of everything and the builder of the entire universe" (Participant 12).

Physiology is the science of theology and thinking of creation

"Physiology is the same order and sign of the order of the world and the power and greatness of God in creation that makes us understand that ultimately the goal of reaching God" (Participant 14).

"Physiology is one of the most beautiful ways of examining humans in terms of the factors of growth and life and how the body's organs function" (Participant 8).

"We know that this world is complex, purposeful, and full of mysteries, and by understanding and comprehending physiology, we reach a higher understanding of this world" (Participant 10).

Discussion

In the present study, medical students expressed their perceptions on two main issues: the effects of spiritual health on life and spiritual health and learning physiology. Generally, they assessed the role of spiritual health in learning physiology as effective.

Considering the essential role of spirituality in healthcare systems, it is important to explore new opportunities for developing spiritual competencies within medical education.² In their qualitative study, which summarizes the views of some medical education experts, Miller argues that all Canadian physicians should receive mandatory training in providing spiritual health care.¹² The study by Lucchetti et al showed that few Brazilian medical schools have courses specifically dealing with spirituality and health (S/H), and less than half offer some training in this

area. Nevertheless, most medical directors believe this is an important topic that should be taught.¹³

According to the present study and the students' opinions through interviews, students highlighted one key aspect: spiritual health enhances their peace and knowledge, leading to improved performance. They noted that spiritual health causes more peace and relieves their anxiety. Also, this strong spiritual connection will increase mental accuracy and peace of mind.

The results of a study by Banisi in 2019 showed that happiness and mental well-being have a positive and significant relationship with the spiritual health of medical students. Therefore, it is possible to increase medical students' happiness and subjective well-being through an educational workshop to promote their spiritual health.¹⁴ The results of the study by Abdolkarimi et al in 2022 showed that during the COVID-19 crisis, there is a positive relationship between spiritual health and dimensions of happiness,¹⁵ which aligns with our study.

Bolhari et al stated in their study that a student needs a set of new life skills in the spiritual dimension to overcome daily stresses and achieve a desirable life.¹⁶ In our study, students also stated that invocation and communication with God reduce stress and anxiety.

The results of a study investigating the relationship between spiritual health and achievement motivation among students at Mazandaran University of Medical Sciences in Iran showed that most students had an average level of spiritual health. A significant relationship was observed between achievement motivation scores and prayer. Given the significant relationship between achievement motivation and prayer, it is recommended that necessary measures be taken to promote students' spiritual health to improve their academic performance.¹⁷

The results of the present study showed that communication with God increases concentration, memory power, and better learning of endocrine physiology. The results of this study showed a two-way relationship between communication with God and learning of physiology. Spiritual connection with God leads to greater peace, which can increase concentration and reduce stress. These factors have a positive effect on improving learning, and increasing concentration can also increase memory power.

The relationship between spiritual health and student learning should be noted, as people with stronger religious beliefs have higher mental health and are less exposed to stress and anxiety; they perform better than other students with tensions and pressure from the educational environment, especially during their assessment in the academic exam. They achieve better learning during their studies.

The strength of this study was that students' perceptions of the impact of spiritual health in one of the most important introductory medical courses, endocrine physiology, were examined qualitatively for the first time.

One of the limitations of this study is the small number of participants. Although it is valuable and appropriate for this demographic group, it was only conducted in a specific field and course, endocrine physiology, and at one university. Also, the participants in this study were all Muslims and Shia, which limits the generalizability of the findings. It is suggested that similar studies be conducted with larger populations and religious diversity in the future. Future research should study the effect of spiritual health on other physiological factors, as well as mental health, as a quantitative and qualitative study on a larger scale. Also, a study should be conducted on the impact of spiritual health on student education from the perspective of professors.

Conclusion

The present study showed that spiritual health increases peace and satisfaction with life, hope, and joy, and reduces stress, anxiety, and negative energies. As a result, spiritual health increases concentration, memory power, and better learning of the physiology of the endocrine glands. This study's results showed a two-way relationship between communication with God and learning the physiology lesson. The greater the faith in God, the greater the understanding of the order of creation and, as a result, the easier it is to learn the physiology lesson, which is based on the unique order of the human body. Also, considering that physiology is a theological science, through thinking about the order and creation of the human body and understanding the unique order of creation, a stronger faith in the Creator of the universe is created. Therefore, it is recommended that more attention be paid to the spiritual health of students in educational systems.

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Authors' Contribution

Conceptualization: Esmat Radmanesh.

Data curation: Mohammad Hadi Elahimanesh.

Investigation: Esmat Radmanesh, Mohammad Hadi Elahimanesh, Zahra Gorjian, Sajede Mousaviasl, Maryam Ban.

Methodology: Esmat Radmanesh, Mohammad Hadi Elahimanesh, Zahra Gorjian, Sajede Mousaviasl, Maryam Ban.

Project administration: Esmat Radmanesh.

Writing—original draft: Esmat Radmanesh, Mohammad Hadi Elahimanesh.

Writing—review & editing: Esmat Radmanesh, Mohammad Hadi Elahimanesh, Zahra Gorjian, Sajede Mousaviasl, Maryam Ban.

Competing Interests

The authors declare no conflict of interest.

Ethical Approval

This study received approval from the Ethics Committee of Abadan University of Medical Sciences, with Ethical Approval ID: IR.ABADANUMS.REC.1402.135. The participants provided informed consent.

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