RESEARCH ARTICLE

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Examining Irrational Beliefs and their Association with the Quality of Life of Students: Evidence from a Cross-Sectional Study

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Abstract:

Background: Irrational beliefs are among the significant factors that contribute to self-harming behaviors and the quality of life. This study aims to examine irrational beliefs and their association with the quality of life among students at Jiroft University of Medical Sciences in southern Iran in 2024.

Methods: This cross-sectional descriptive-analytical study was conducted in 2024 on 290 students enrolled in the second semester of the 2023-2024 academic year at Jiroft University of Medical Sciences (including the faculties of Medicine, Nursing, Public Health, and Paramedicine) in Southern Iran. Standardized questionnaires on irrational beliefs and quality of life were used for data collection. T-tests, ANOVA, and Pearson correlation coefficients were applied to the data analyzed by SPSS 23 software ($\alpha= 0.05$).

Results: The mean and standard deviation of irrational beliefs and quality of life were 337.56 ± 22.37 out of 500 and 57.71 ± 14.63 out of 120, respectively, indicating moderate and low levels for these two variables. A statistically significant correlation was observed between students' irrational beliefs and their quality of life ($p < 0.001$, $r = -0.543$).

Conclusion: Irrational beliefs in students were estimated at a moderate level, and quality of life at a low level. It is suggested that the authorities in charge of the university's students, advisory, and cultural affairs provide the conditions to improve the quality of life of students, pay attention to their needs, and try to solve their problems to reduce their irrational beliefs.

Keywords: Irrational beliefs, Quality of life, Students, Iran, Frustration reactivity, Emotional irrespon.

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1. INTRODUCTION

Higher education institutions and universities are among the most crucial centers for the production and dissemination of knowledge. They have played a pivotal role in fostering creativity, bringing innovation, and flourishing the talents from a long time ago, ultimately contributing to the creation of a knowledge-based society [1]. Universities, as subsystems of higher education, are

among the most invaluable institutions upon which all societies rely for growth and development. This is because, on the one hand, they are essential for cultivating skilled and efficient human resources, and on the other, they significantly impact the advancement of technology and the progress towards sustainable development [2]. Thus, the universities' fundamental mission and or function, is educating and training skilled and specialized personnel needed by the society, as well as providing a conducive environment for the sustainable growth and development of the country [3]. In this educational system, students are acknowledged as the main stakeholders in education, and comprehending their beliefs and emotions will facilitate the conscious planning of educational activities [4]. This is critical because the future success of educational institutions largely hinges on their ability to establish appropriate human relations with students [5].

Students represent one of the most intelligent and talented segments of society, crucial for building and sustaining their country's future. Their mental and physical health significantly impacts their learning and the enhancement of their practical and academic knowledge, which can profoundly influence the future of any nation [6]. However, mental disorders among students can play a significant role in reducing their efficiency [7]. Various studies indicate that certain adverse psychological states and behaviors, such as anxiety and depression, are prevalent among students in university environments [8]. Students face a range of challenges, including academic, financial, marital, personal, behavioral, and social issues [9]. Consistent with health studies, psychological research has demonstrated that individuals' perceptions and mindsets regarding the realities of their lives have the most significant influence on their life satisfaction [10]. In this regard, Jones believes that irrational thoughts and beliefs are involved in the etiology of all emotional disturbances and psychological abnormalities [11]. While rational thinking and beliefs contribute to greater satisfaction, irrational thinking, and beliefs, which are detached from reality, absolutist, and lack logical support, impede effective coping with events [12]. Irrational beliefs are thoughts that dominate an individual's mind; they determine how events are interpreted, give meaning, and regulate the quality and quantity of behaviors and emotions [13]. In other words, irrational beliefs are desires and goals that become essential preferences, such that their unfulfillment can lead to anxiety and turmoil [14]. These beliefs do not align with reality, impose 'musts' on the individuals, disrupt their balance, and prevent them from establishing order [15]. Such beliefs either manifest directly with consequences like sadness, depression, and anger or appear internally and momentarily, resulting in inactivity and disinterest in work and activities [16]. Irrational beliefs are negative beliefs that cause anxiety and tension in individuals. These beliefs are based on unfounded 'musts' that are formed in the mind, disrupting a person's balance and leading to pathological behaviors and emotions that threaten an individual's survival, mental

health, and emotional well-being. Therefore, it can be said that these beliefs are significant and influential factors that affect one's health [7]. Some studies have also shown that irrational beliefs are linked to lower happiness, higher anxiety, and reduced life satisfaction [17].

Another variable that can be influenced by irrational beliefs is the quality of life [18]. Quality of life is a broad concept that encompasses all aspects of life, including health [19]. This term, which is used in various political, social, and economic contexts, is often applied in medical studies and is generally understood by specialists to include various physical, physiological, social, and spiritual dimensions [20]. According to the World Health Organization, quality of life is defined as individuals' perceptions of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards, and priorities [19]. Researchers assert that examining quality of life and striving to improve it play a significant role in individuals' personal and social well-being [21]. Several studies have been conducted on the quality of life among students. Vaez *et al*. demonstrated in their study that students' quality of life is significantly lower compared to non-students of the same age [22]. Brown *et al*. also found that among various aspects of quality of life among students, emotional health issues were more prevalent than physical health issues [23].

Considering the importance of rational thinking and beliefs, as well as a high quality of life, in the positive performance of students, and given the limited studies examining the relationship between these variables, this research aimed to investigate the association between irrational beliefs and quality of life among students at Jiroft University of Medical Sciences in southern Iran in 2024.

2. METHODS

2.1. Design and Setting

This cross-sectional descriptive-analytical study was conducted in 2024. The study population comprised students from Jiroft University of Medical Sciences, including those enrolled in the faculties of Medicine (Medical Doctor program), Nursing (Nursing and Midwifery programs), Public Health (Public Health and Environmental Health programs), and Paramedicine (Clinical Laboratory Sciences, Operating Room technologist, and Anesthesiology programs).

Based on the following formula [24] and the correlation between irrational beliefs and quality of life derived from a pilot study (r = 0.20), with a 95% confidence level and $\beta = 0.10$, the minimum sample size was estimated to be 259 participants. To account for potential attrition and ensure accuracy, 290 participants were recruited for the study.

(1) $n = [(Z_{1-\alpha/2} + Z_{1-\beta}) / W]^2 + 3$

In formula. 1, W was calculated using the following equation:

(2) $W = (\frac{1}{2} \ln) 1+r/1-r$

In formula. 2, r represents the estimated correlation coefficient between irrational beliefs and quality of life in an experimental study.

Given that the total population under study was 1,136 individuals, the required sample size for each faculty was determined by dividing 290 by 1,136 and multiplying the result by the number of students in each faculty. The table below lists the names of the faculties under study, along with the total number of students and the sample size for each faculty specified separately, as shown in Table **1**.

Table 1. The size of the population and samples by each faculty.

Faculty	Number of Students (population size)	Sample Size
Medicine	302	77
Nursing and Midwifery	326	83
Public health	215	55
paramedicine	293	75
All faculties	**1136**	**290**

Additionally, within each faculty, proportional stratified sampling was conducted based on year of enrollment and academic discipline to determine the required sample size. After calculating the sample size for each enrollment year and academic discipline, students were randomly selected using their student ID numbers and a random number table.

The inclusion criteria for participation in the study were being enrolled in the second semester of the academic year 2023-2022, consenting to participate, and not using psychiatric medications for at least one month prior to assessment. The exclusion criteria included unwillingness to participate, having physical or mental illnesses, and having neurological disorders based on medical records maintained by the university's student affairs office.

2.2. Instruments

A three-part questionnaire was utilized to collect the data. The first section of the questionnaire included demographic information, such as age, gender, field of study, educational level, marital status, place of residence, and employment status. The second section was the standardized Jones Irrational Beliefs Questionnaire [25]. This questionnaire comprises 100 items covering ten domains: Demand for Approval (10 items), High Self-Expectations (10 items), Blame Proneness (10 items), Frustration Reactivity (10 items), Emotional Irresponsibility (10 items), Problem Avoidance (10 items), Dependency (10 items), Helplessness for Change (10 items), Perfectionism (10 items), and Anxious Overconcern (10 items). Each respondent rated these items on a five-point Likert scale (1 = Strongly Disagree, 2 = Moderately Disagree, 3 = Neither Agree nor Disagree, 4 = Moderately Agree, 5 = Strongly Agree). For negative items, the scoring was reversed (1 = Strongly Agree, 5 =

Strongly Disagree). With a scoring range of 100 to 500, an average score between 100 to 180 indicates very low irrational beliefs, 181 to 260 indicates low irrational beliefs, 261 to 340 indicates moderate irrational beliefs, 341 to 420 indicates high irrational beliefs, and 421 to 500 indicates very high irrational beliefs [25]. The validity and reliability (Cronbach's alpha coefficient of 0.86) of the Irrational Beliefs Questionnaire were confirmed in the study by Chan and Sun [26].

The third part of the questionnaire was the standardized World Health Organization Quality of Life (WHOQOL-BREF) questionnaire. This questionnaire contains 24 items across four domains: Physical Health (7 questions), Psychological Health (6 questions), Social Relationships (3 questions), and Environmental Health (8 questions). Items were scored using a five-point Likert scale ranging from Very Dissatisfied (score 1), Dissatisfied (score 2), Neither Satisfied nor Dissatisfied (score 3), Satisfied (score 4), to Very Satisfied (score 5). For negative questions, the scoring was reversed (score 5 for Very Dissatisfied and score 1 for Very Satisfied). With a scoring range of 24 to 120, an average score between 24 to 43 indicates very poor quality of life, 44 to 63 indicates poor quality of life, 64 to 83 indicates moderate quality of life, 84 to 102 indicates good quality of life, and 103 to 120 indicates excellent quality of life [27]. The validity and reliability of this questionnaire, with a Cronbach's alpha coefficient of 0.87, were confirmed in the study by Nejat *et al.* [27].

2.3. Procedures and Statistical Analysis

For data collection, one of the researchers visited the faculties under study on different days of the week, both in the morning and afternoon, to distribute and collect the questionnaires. To adhere to ethical considerations, participation in the study and completion of the questionnaires was entirely voluntary, contingent upon the individual's willingness to participate. After explaining the study's objectives to the participants, the confidentiality of the responses was emphasized, and verbal consent was obtained. The questionnaires were then distributed in person among the students and collected on the same day. The collected data were subsequently entered into SPSS version 23 for analysis.

Pearson's correlation coefficient was used to examine the correlation between the variables of irrational beliefs and quality of life among students, as well as their correlation with students' age. The T-test was utilized to assess differences in the mean scores of the two main research variables based on gender, marital status, place of residence, and employment status. Finally, ANOVA was employed to investigate differences in the mean scores of irrational beliefs and quality of life among students based on educational level and field of study.

3. RESULTS

The average age of the students participating in the study was 21.34 ± 7.19 years, with the majority (59.83%) falling within the 18-22 age group. Most respondents were

female (70.46%), single (79.65%), studying medicine (26.55%), at the undergraduate level (68.62%), and living in dormitories (83.11%). Additionally, 12.41% of the students were employed (having an independent and legitimate source of income) (Table **2**).

As the findings in Table **3** show, the mean and standard deviation of irrational beliefs were 337.56 ± 22.37 out of 500, indicating a moderate level. Among the dimensions of irrational beliefs, "Anxious Overconcern" had the highest mean and standard deviation, scoring 38.56 ± 9.14 out of 50.

According to Table **4**, the mean and standard deviation of quality of life were 57.71 ± 14.63 out of 120, indicating a poor status for this variable. Among the dimensions of quality of life, the lowest mean and standard deviation were related to the "Psychological Health" dimension (12.68 ± 5.32 out of 30).

Based on the findings of this study, there was a statistically significant inverse correlation between irrational beliefs and the quality of life of students ($p < 0.001$, $r = -0.543$).

Table 2. Frequency and Percent of demographic characteristics of participants (n=290).

Variable	Category	Frequency	Percent
Age (Year)	18-22	175	60.35
	23-27	92	31.72
	28-32	15	5.17
	32 <	8	2.76
Gender	Male	86	29.65
	Female	204	70.35
Marital status	Single	230	79.31
	Married	60	20.69
Degree	Under BSc	14	4.83
	BSc	199	68.62
	MD	77	26.55
Field of Study	Medicine	77	26.55
	Nursing	49	16.90
	Midwifery	34	11.72
	Clinical laboratory sciences	23	7.93
	Operating Room technologist	29	10.00
	Anesthesiology	23	7.93
	Public health	25	8.62
	Environmental Health	30	10.35
Place of residence	Dormitory	241	83.11
	Others	49	16.89
Employment status*	Employed	36	12.41
	Unemployed	254	87.15

Note: * having an independent and legitimate source of income.

Table 3. Mean and standard deviation of irrational beliefs among participants.

Irrational Beliefs	Range of Score	Mean	Standard Deviation (SD)
Demand for Approval		32.14	11.39
High Self-Expectations		35.26	12.25
Blame Proneness		34.32	13.26
Frustration Reactivity		31.84	8.19
Emotional irresponsibility	10-50	28.75	10.48
Problem Avoidance		29.34	9.17
Dependency		35.22	10.31
Helplessness for Change		29.67	9.55
Perfectionism		36.46	10.16
Anxious Over-concern		38.56	9.14
Total irrational beliefs	100-500	337.56	22.37

Table 4. Mean and standard deviation of quality of life among participants.

Quality of Life	Range of Score	Mean	Standard Deviation (SD)
Physical Health	7-35	15.83	7.19
Psychological Health	6-30	12.68	5.32
Social Relationships	3-15	15.08	6.41
Environmental Health	8-40	14.12	5.26
Total quality of life	**24-120**	**57.71**	**14.63**

Table 5. Relationship between irrational beliefs and quality of life with the demographic variables of participants.

Variables	Category	Irrational Beliefs		Quality of Life	
		Mean ±SD (100-500)	P- Value	Mean ±SD (24-120)	P-Value
Age	18-22	342.3 ±19.52	0.18	56.10 ± 15.22	0.23
	23-27	339.83 ±23.18		56.38 ± 14.19	
	28-32	335.72 ±20.44		58.59 ± 15.11	
	32ʿ	332.36 ± 23.11		59.77 ± 15.24	
Place of residence	Dormitory	340.25 ± 24.17	**0.014**	56.13 ± 14.14	**0.002**
	Others	334.87 ± 21.46		59.29 ± 14.75	
Gender	Male	335.08 ± 22.12	**0.03**	58.37 ± 15.09	0.09
	Female	340.04 ± 23.48		57.05 ± 14.86	
Marital status	Single	339.53 ± 19.52	0.11	56.93 ± 14.19	**0.04**
	Married	335.59 ± 21.47		58.49 ± 15.06	
Degree	Under BSc	338.16 ± 22.34	0.27	57.13 ± 14.32	0.42
	BSc	339.41 ± 23.19		56.72 ± 14.21	
	MD	335.11 ± 20.57		59.28 ± 14.69	
Field of Study	Medicine	336.34 ± 20.07	0.33	59.28 ± 14.69	0.19
	Nursing	335.22 ± 22.38		58.85 ± 15.41	
	Midwifery	336.44 ± 21.49		57.64 ± 14.28	
	Clinical laboratory sciences	335.14 ± 23.44		57.46 ± 15.84	
	Operating Room technologist	339.61 ± 21.14		57.15 ± 14.84	
	Anesthesiology	340.18 ± 22.62		56.87 ± 15.57	
	Public health	338.31 ± 23.49		57.47 ± 15.53	
	Environmental health	339.24 ± 22.75		56.96 ± 14.76	
Employment status	Employed	335.88 ± 21.59	0.08	59.47 ± 15.47	0.14
	Unemployed	339.24 ± 22.17		55.95 ± 14.69	

Moreover, the findings of the study reveal that the mean score of irrational beliefs was significantly different based on the variables of place of residence (p = 0.014) and gender (p = 0.03). Specifically, the mean score of irrational beliefs was higher in dormitory residents (340.25 ± 24.17 out of 500) and females (340.04 ± 23.48 out of 500) compared to others. Additionally, the mean quality of life score was significantly different based on the variables of place of residence (p = 0.002) and marital status (p = 0.04). The mean quality of life score was higher in non-dormitory residents (59.29 ± 14.75 out of 120) and married students (58.49 ± 15.06 out of 120) compared to others (Table 5).

4. DISCUSSION

Based on the findings of the present study, the irrational beliefs of the students were at a moderate level. Among the components of irrational beliefs, the 'Anxious Over-concern' component had the highest mean score. Students, due to their presence in the university environment and the specific conditions of this period, may experience some adverse psychological states and behaviors, such as anxiety and depression. Additionally, students live in educational, social, and cultural settings that seem to engage them less in critical thinking. Therefore, the lack of skills in analysis, synthesis, and evaluation of information, or, in other words, critical thinking, results in many irrational beliefs not being challenged, thereby creating or maintaining these irrational beliefs. Moreover, personality, as a fundamental factor in all societies, influences various aspects of life, including beliefs, and students are no exception to this rule. Furthermore, students are at an age and developmental stage where it is necessary for them to understand and optimize their personalities [28].

The findings of the present study show that the quality of life of the surveyed students was at a poor level. Among the components of quality of life, the 'Mental Health' component had the lowest mean score, indicating a poor state of mental health. According to the findings of Soltani *et al*. (2010), the quality of life for most students (51%) was at a moderate level, with the 'Spiritual Interests' component having the lowest mean score [29]. In the study by Amiri *et al*. (2014), the lowest mean scores for students' quality of life were observed in the environmental health dimension [30], which is not consistent with the findings of the present study. However, the results of Gholami *et al*.'s (2017) study indicated that the lowest mean score for students' quality of life was in the mental health dimension [31], aligning with the present study's findings. To explain the findings of this section, it can be stated that factors, such as heavy coursework, inadequate recreational environments, lack of a network of relatives and friends, financial and economic problems, the absence of intercultural programs for non-local students, and a sedentary lifestyle can affect students' mental health.

Additionally, the design of dormitory environments potentially impacts the psychological stress levels of resident students, consequently affecting their mental health. Economic problems and unemployment can also lead to psychological issues, which reduce students' quality of life. Shakrinia (2009) identified commuting from hometown to the university as a factor that reduces students' mental health, reporting increased psycho-logical, physical, and social problems among these students [32].

The findings of this research indicate a negative correlation between irrational beliefs and students' quality of life. This means that as students' irrational beliefs increase, their quality of life decreases. Several studies have demonstrated a significant relationship between irrational beliefs and various factors, including psychological security, quality of life, increased burnout, health and mental health, anxiety and stressful situations, emotional disorders, stress, depression, and depressed mood [33-37]. To explain this finding, it can be stated that quality of life can be influenced by a person's irrational beliefs. Irrational beliefs are the main cause of various human problems. These beliefs dominate individuals' mental and psychological states, shaping their interpretation of events and regulating the quality and quantity of their feelings and behaviors. We have a strong tendency to internalize self-defeating beliefs, which cause emotional distress and make achieving and maintaining mental health truly challenging [18]. According to the cognitive perspective, irrational cognitions can lead to dysfunctional emotions and behaviors, significantly impacting an individual's quality of life [33].

The results of the current study demonstrated that the average scores of irrational beliefs among university students varied significantly based on the gender variable. Specifically, female students exhibited higher average scores of irrational beliefs compared to male students. Consistent with some of the findings of the study conducted by Ghahari *et al*. (1402), there was a significant relationship between gender and irrational beliefs among students [38]. Similarly, Afshahr (2016) indicated differences in irrational beliefs among students based on gender [7]. Furthermore, Cherkzai *et al*. (2014) found that the mean scores of irrational beliefs were significantly higher among female students compared to male students [39]. The results of Afshahr (2016) also suggested a significant gender difference in irrational beliefs between females and males [7], aligning with the findings of the current study.

Conversely, according to Fayyaz and Kiayni (2009), gender did not influence the level of irrational beliefs among university students [40]. Additionally, Rahimi Ahmad Abadi *et al*. (2020) reported higher average scores of irrational beliefs among males compared to females [41], which contrasts with the findings of this section of our study. In elucidating the findings of this section, it can be noted that one possible reason for the higher average scores of irrational beliefs among female university students compared to males may be attributed to several factors. Female students typically experience a decrease in familial support and social care upon entering university, alongside encountering interactions with male peers and facing certain cultural and emotional challenges. Consequently, they often require more validation and social support. Additionally, a significant portion of irrational beliefs among female students directly arise from their engagement with online social networks. Given that much of the content shared in virtual spaces expresses irrational perspectives, this could significantly influence the emergence of irrational behaviors among female students [42].

Furthermore, there was a significant difference in the average scores of students' quality of life based on their residential status, where the average quality of life score among non-dormitory students was higher compared to dormitory residents. According to findings from Soltani *et al*. (2010) [29] and Mehdi (2016) [43], non-dormitory students reported higher quality of life compared to dormitory residents. The study by Salimi *et al*. (2015) affirmed the significant association between quality of life and residential status, with students living in rented accommodations achieving the highest scores and those residing in dormitories achieving the lowest [44]. These findings align with this section of the current study's results. In interpreting this section of the research findings, it can be stated that the existing differences among individuals with different cultures, customs, and habits in dormitory environments, coupled with separation from family and lack of support, are among the influential factors contributing to reduced quality of life among dormitory-residing students.

Another significant finding of this study was the statistically significant difference in the average quality of life scores among students based on marital status. Specifically, married students had higher quality of life scores compared to single students. This contrasts with studies by Kamkar *et al*. (2023), Najafi *et al*. (2018), and Zeynizadeh-Jeddi *et al*. (2020), which did not report a significant relationship between quality of life and marital

status [45-47]. Conversely, the results of Gholami *et al*. (2017) and Amiri *et al*. (2014) align with the present study, showing that married students exhibited higher quality of life compared to their single counterparts. In interpreting this finding, it can be argued that married individuals benefit from the support and consultation of their spouses, which naturally contributes to higher life quality scores than those observed among single individuals [30, 31].

The limitations of this study include its quantitative nature and data collection *via* questionnaires. Therefore, conducting qualitative studies through interviews related to the research topic could potentially reveal hidden and unarticulated aspects of this study more comprehensively.

CONCLUSION

Considering that irrational beliefs were reported at a moderate level among students and life quality was assessed as low, it is recommended that university officials in student affairs, counseling, and cultural departments improve the quality of life of students. This can be achieved by establishing mental health counseling centers within dormitories and university campuses, enhancing sports and recreational facilities, providing medical examinations for incoming students, and addressing the needs of students to mitigate their irrational beliefs.

For future research, it is suggested to investigate the status of irrational beliefs and the quality of life of students separately from each field of study. It is also recommended to conduct this research with a quantitative-qualitative approach. In addition, it is suggested to examine each of the dimensions and components of irrational beliefs and quality of life separately for students.

AUTHORS' CONTRIBUTIONS

ARY designed the study and prepared the initial draft. HA and ARY contributed to data collection and data analysis. SHB, OA, and JB supervised the whole study and finalized the article. All authors read and approved the manuscript.

ABBREVIATION

WHOQOL-BREF = World Health Organization Quality of Life

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

This study was approved by the Jiroft University of Medical Sciences Ethics Committee, Iran with the ID number IR.JMU.REC.1402.007.

HUMAN AND ANIMAL RIGHTS

All procedures performed in studies involving human participants were in accordance with the ethical standards of institutional and/or research committee and with the 1975 Declaration of Helsinki, as revised in 2013.

CONSENT FOR PUBLICATION

The informed consent was obtained from all the study participants.

STANDARDS OF REPORTING

STROBE and SAGER guidelines were followed.

AVAILABILITY OF DATA AND MATERIALS

The authors confirm that the data supporting the findings of this research are available within this article.

FUNDING

None.

CONFLICT OF INTEREST

The authors declare no conflict of interest, financial or otherwise.

ACKNOWLEDGEMENTS

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