



The State of Moral Intelligence of Medical Students of Kermanshah University of Medical Sciences in 2022

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Received 2023 August 21; Revised 2024 June 2; Accepted 2024 June 8.

Abstract

Background: Recently, new dimensions have been recognized in the field of intelligence. One of the most important of these is moral intelligence, which has not been extensively addressed in Iran.

Objectives: Moral intelligence represents the mental capacity of individuals to relate universal human principles to their values, goals, and actions. It guides all other types of human intelligence towards performing valuable work.

Methods: The current descriptive cross-sectional study involved a statistical population of medical students, with a sample size of 248 people selected through random and available sampling methods. To collect data, the standard moral intelligence questionnaire by Lennik, Keel, and Jordan was used. The data collected was analyzed using SPSS-21 software, employing both descriptive and inferential statistics, including Spearman's correlation coefficient.

Results: The total score of students' moral intelligence was 76.29 ± 9.80 , which is evaluated as good. The area of honesty had the highest score (81.2), while the area of empathy had the lowest score (70.3). Among the indexes, keeping promises scored the highest (93.6), and admitting mistakes and omissions scored the lowest (70.5). Scores were higher among women and married individuals, and moral intelligence scores increased with advancing academic semesters. However, there were no significant differences overall, except that the empathy field had a significant relationship with age ($P = 0.031$), and gender had a significant relationship with the overall score of moral intelligence ($P = 0.041$).

Conclusions: According to the total moral intelligence score of the students, which was 76.29 ± 9.80 , it was determined that the moral intelligence status among the medical students of Kermanshah Medical School is in good condition.

Keywords: Ethical Intelligence, Moral, Medical Students

1. Background

Along with acquiring knowledge, attention to moral and cultural values and the development of students' personal, social, moral, and behavioral abilities are among the important tasks that universities and higher education centers prioritize. In this regard, in addition to cognitive and emotional intelligence, "moral intelligence" is also emphasized. Moral intelligence is considered a turning point for all intelligences and is actually "vital intelligence" for all humans. It refers to the fact that human beings are not born morally or immorally but learn how to be good (1). Moral

intelligence is akin to acquired emotional intelligence. To have a healthy society, individuals with high moral intelligence are needed, as people who are only educated and not morally oriented can harm society (2). Given that universities play a crucial role in the life of every student and significantly influence their future behaviors, specific and targeted planning can effectively improve the moral status of students (3).

Recently, new dimensions have been recognized in the field of intelligence, and one of the most important is moral intelligence. Nowadays, moral intelligence has attracted researchers' attention due to its broad effects on other fields. Borba first introduced moral

intelligence in the field of psychology. Borba defines moral intelligence as the capacity and ability to understand right from wrong, having strong moral beliefs, and acting on them and behaving in the right direction. Moral intelligence indicates that moral principles are not inherited but learned. It acts as a guide for behavior and helps us make intelligent and optimal decisions (4). Psychologists' research has shown a positive and significant relationship between religious and spiritual beliefs and mental health. People with spiritual orientation consider themselves bound to human issues in their life decisions and act based on these principles, making their actions in many social and moral situations reflective of their spiritual foundations (5). Undoubtedly, intelligence plays an important and undeniable role in all aspects of life. Researchers generally define intelligence as the capacity to acquire knowledge, the power of abstract reasoning, and the ability to solve problems (6).

According to research, there are different viewpoints in the field of intelligence factors. Some believe in the general factor method, with supporters including Kessler (7) and Spearman (8). Kessler considers intelligence to be a general ability that enables a person to think rationally, engage in purposeful activity, and interact effectively with their environment. Proponents of this view argue that there is a high correlation between different human abilities, such as verbal and abstract reasoning (9).

Moral intelligence structures stable and dynamic rules and identifies an individual's activity in the environment (10). It shows the mental capacity of humans to determine how to relate universal human principles to their values, goals, and actions (11). This type of intelligence also demonstrates a person's desire and ability to set superior criteria beyond their own interests, including issues such as effectiveness in individual reactions. In essence, this intelligence guides all other types of human intelligence towards valuable work (12). Moral intelligence not only provides a strong and defensible framework for human activity but also has many real-world applications (13).

2. Objectives

Given its importance, particularly in helping medical students communicate properly with their environment and patients, the necessity to investigate

the state of moral intelligence in medical students was evident.

3. Methods

This cross-sectional descriptive study involved Kermanshah medical students in 1400, with a sample size of 248 individuals selected through random and accessible sampling. To collect data, the standard questionnaire of moral intelligence for employees by Lenik and Keel was used (14). The validity and reliability of the questionnaire were confirmed by Martin and Austin (15), and through translation, the obtained reliability (Cronbach's alpha) for the questionnaire was calculated as 0.897. The localization of the questionnaire in Farsi has been confirmed by Arasteh et al. (16), and the reliability of this tool has been reported by Mokhtaripour with $r = 0.94$. Its face and content validity have also been confirmed by experts (1).

This questionnaire includes two parts: The demographic characteristics of the participants (age, gender, semester of education, level of education, and marital status) and 40 items with ten indicators under four general categories of moral intelligence: Honesty (4 sub-categories), responsibility (3 sub-categories), forgiveness (2 sub-categories), and empathy (1 sub-category). The questions are based on a 5-point Likert Scale from never to always, assigned points from 1 to 5, respectively. With 4 questions, scores range between 4 and 20, and for a total of 40 questions, scores range between 40 and 200. To convert these to a maximum of 100 points, the total score was divided by 2, resulting in a final moral intelligence score between 20 and 100. Finally, a score of 90 - 100 is considered excellent, 80 - 89 very good, 70 - 79 good, and scores below 69 are considered weak. Each general dimension of moral intelligence was scored based on the average scores of its sub-categories, as suggested by the questionnaire designers.

In the present study, this tool was reviewed by six experts and confirmed in terms of face and content validity. Additionally, the Cronbach's alpha value was 0.82, indicating acceptable reliability. After data collection, the information was analyzed using SPSS-21 software. Descriptive statistics were used to assess the demographic characteristics of the students, and inferential statistics, including Spearman's correlation coefficient, were used to examine the relationship between moral intelligence and the students'

characteristics. A significance level of $P < 0.05$ was considered.

3.1. Ethical Considerations

In this study, the ethical principles necessary for conducting the research were observed. The research plan was approved, and permission was obtained from the research vice-chancellor of the university. All students were informed about their right to withdraw from the study and the confidentiality of the data. [IR.KUMS.REC.1400.260](#).

4. Results

Out of 248 students, 54.3% were female, and 95.5% were unmarried. The average age was 21.25 ± 2.52 years. Additionally, 71.8% were in the basic sciences, and 28.2% were in the clinical section. The total moral intelligence score of the students, obtained from the sum of the four domains, was 76.29 ± 9.80 , which is equivalent to a good evaluation. The scores based on 100 points for all dimensions and indicators are summarized in [Table 1](#), and the highest scores for the questions in each index are summarized in [Table 2](#).

In the four areas, the area of integrity had the highest score, while empathy had the lowest score. The indicators are as follows: Keeping promises and agreements, accepting responsibility to serve people, telling the truth, acting based on principles, values, and beliefs, adaptability to personal decisions, the ability to forgive one's mistakes, perseverance for the right and truth, the ability to forgive others' mistakes, being actively interested in others, and finally, admitting mistakes and omissions. The scores of married women were higher, and the score of moral intelligence increased with academic semesters, but there was no significant difference. Only the field of empathy had a significant relationship with age. Overall, the score of moral intelligence had no significant relationship with age or gender, although gender did have a significant relationship with the overall score of moral intelligence. Marital status also had no relationship with moral intelligence.

In the ten indexes, the highest-scoring questions were: Index 1, the conformity of my behaviors with my beliefs and values; Index 2, they can count on me because I am honest and truthful towards them; Index 3, I am one of those people who do not back down from

my values and beliefs; Index 4, being secretive; Index 5, when I make a mistake, I accept the responsibility of correcting the situation; Index 6, I accept responsibility for my mistakes and failures and talk about my mistakes to increase my risk tolerance. One of the low points among the questions was Index 7, I pay attention to the needs related to the growth of my friends, with a score of 42.3. The question, "My friends say that I give up work to help them," had a score of 33.1. Another question, "I spend a lot of time providing resources and removing obstacles in the path of my friends," had a score of 33.9 in terms of responsibility. The question, "Even when people make mistakes, I still trust them," scored the lowest, with a score of 27.

In all four domains of honesty, responsibility, forgiveness, and empathy, and in all ten indicators, women's scores were higher than men's, and married women's scores were higher than single men's, but these differences were not significant. The average score was 78.44, but this difference was not significant either. To measure the relationship between the variables and the areas of moral intelligence, Spearman's correlation coefficient was used, given that the distribution of the data was not normal. The results showed that only the empathy area had a significant relationship with age ($P = 0.031$), while the other areas did not. Overall, the score of moral intelligence had no significant relationship with age, but gender had a significant relationship with the overall score of moral intelligence ($P = 0.041$). The relationship between marital status and moral intelligence also showed that there is no relationship between being married or single and moral intelligence.

5. Discussion

The total score of students' moral intelligence was 76.29 ± 9.80 , which was evaluated as good. The area of integrity had the highest score, while the area of empathy had the lowest score. The indicators, in order, were: Keeping promises and agreements, accepting responsibility for serving people, telling the truth, acting based on principles, values, and beliefs, responsibility for personal decisions, the ability to forgive one's own mistakes, perseverance for the right and truth, the ability to forgive others' mistakes, being actively interested in others, and admitting mistakes and omissions. Women's scores and married people's scores were higher, and the score of moral intelligence increased with academic semesters. However, only the

Table 1. Scoring Dimensions and Indicators of Moral Intelligence

Row	General Dimensions of Moral Intelligence	Score or Points	Indicators	Score or Points	Equivalent
1	Righteousness	81.2 ± 9.43; very good equivalent	1- Acting based on principles, values and beliefs	80.7	Very good
			2- Honesty and telling the truth	82.6	Very good
			3- Perseverance for the truth	76.4	Good
			4- Faithfulness to the covenant	85.1	Very good
2	Responsibility	77 ± 8.75; good equivalent	5- Accepting the responsibility to serve people	83.5	Very good
			6- Responsibility for personal decisions	78.75	Good
			7- Admitting mistakes and omissions	68.65	Weak
3	Forgiveness	76.75 ± 9.52; good equivalent	8- Ability to forgive your mistakes	87	Good
			9- The ability to forgive the mistakes of others	75.5	Good
4	Sympathy	70.2 ± 11.52; good equivalent	10- Actively interested in others	70.2	Good

Table 2. Question Scores for Each Index

Row	General Dimensions of Moral Intelligence	Indicators	Question	Score or Points	Equivalent
1	Righteousness	1- Acting based on principles, values and beliefs	My friends say that my behavior is very consistent with my beliefs and values.	84.7	Very good
		2- Honesty and telling the truth	My friends know that they can count on me because I am honest and truthful towards them.	89.6	Very good
		3- Perseverance for the truth	My friends say that I am one of those people who do not back down from my values and beliefs.	75.8	Good
		4- Faithfulness to the covenant	When someone asks me to keep her secret, I do the same.	93.6	Very good
2	Responsibility	5- Accepting the responsibility to serve people	When I make a mistake, I accept the responsibility of correcting the situation.	89.1	Very good
		6- Responsibility for personal decisions	I accept responsibility for my mistakes and failures.	86.1	Very good
		7- Admitting mistakes and omissions	I pay attention to the needs related to the growth of my friends.	70.5	Good
3	Forgiveness	8- Ability to forgive your mistakes	I really care about the people I work with.	77.4	Good
		9- The ability to forgive the mistakes of others	My friends say that I have a realistic attitude towards my mistakes and failures.	82.3	Very good
4	Sympathy	10- Actively interested in others	I accept that other people make mistakes too.	90.7	Very good

empathy domain had a significant relationship with age. The overall score of moral intelligence had no significant relationship with age, but gender had a significant relationship with the overall score of moral intelligence. Marital status also had no relationship with moral intelligence.

In the ten indexes, the highest-scoring questions were: Index 1, the conformity of my behaviors with my beliefs and values; Index 2, they can count on me because I am honest and truthful towards them; Index 3, I am one of those people who do not back down from my values and beliefs; Index 4, being secretive; Index 5, when I make a mistake, I accept the responsibility of correcting the situation; Index 6, I accept responsibility for my mistakes and failures and talk about my mistakes to increase my risk tolerance.

In the study by Zeraati et al. (17), which examined the moral intelligence of medical students at medical sciences universities in Tehran, the percentage of female participants was higher than male, and the percentage of unmarried people was similar to our results. However, it was lower, which may be due to the fact that our study was conducted recently and medical ethics courses have been added to the educational curriculum in recent years. In Zeraati et al.'s study (17), moral intelligence did not show a significant relationship with gender but showed a significant relationship with marital status, with married people having a higher level of moral intelligence. Moral intelligence also showed a significant relationship with the level of education, increasing with educational years. The relationship between moral intelligence and age

showed a positive and significant correlation. While the findings on gender and marital status were opposite to our results, the findings on educational level and age were partially similar to our results.

Our study probably influenced these findings. Additionally, in our study, medical students scored highest to lowest in the following indicators: Truthfulness and telling the truth, acting based on principles, values, and beliefs, keeping promises, the ability to forgive their mistakes, the ability to forgive others' mistakes, responsibility for personal decisions, accepting responsibility to serve people, admitting mistakes and omissions, perseverance for truth, and being actively interested in others. The top and bottom halves of the scores were similar to the results of Zeraati et al. (17).

In the study by Atta Allahi and Rabiei (18), which examined the relationship between moral intelligence and social capital at Payam Noor University, the score of moral intelligence was found to be 73.3, lower than the score in our study. They found a positive correlation between age, moral intelligence, and social capital, though the correlation was weak. In our study, only the field of empathy had a significant relationship with age, and the overall score of moral intelligence did not show a significant relationship with age. The indicators of truthfulness, keeping promises, taking responsibility, admitting mistakes and failures, accepting responsibility to serve others, being actively interested in others, the ability to forgive one's mistakes, and the ability to forgive others' mistakes, were consistent with the results of Attaullahi and Rabiei's study (18).

In the study by Khaleghi and Chenari (19), which measured the relationship between moral intelligence and altruism at the University of Qom, the married rate was 27.5%, much higher than in our study. This is probably due to the long and demanding nature of medical courses, which may not allow students to get married. The main areas of moral intelligence score—honesty, responsibility, forgiveness, empathy, and compassion—were similar to our study in the areas of responsibility, forgiveness, and empathy. The total score was 76.58, slightly higher than in our study. Both scores were in the "good" category. In the ten indicators of moral intelligence, the scores were as follows: The ability to forgive others' mistakes, giving importance to others, keeping promises, honesty, continuous behavior according to principles, values, and beliefs,

responsibility for personal decisions, standing up for the right, the ability to forgive one's mistakes, admitting mistakes and failures, and accepting responsibility to serve others. These results differed from our study, possibly due to the relationship between moral intelligence and altruism, particularly in the forgiveness of others' mistakes and giving importance to others. There was no significant relationship between the moral intelligence of students in different age groups and between single and married students, which was similar to our results (19).

In the study by Arshiha et al. (20), which investigated the relationship between moral intelligence and communication skills in nursing and midwifery students, the moral intelligence score of nursing students was 71.98 ± 7.12 , much lower than in our study. The order of the indicators was: Keeping promises, telling the truth, admitting mistakes and failures, giving importance to others, the ability to forgive others' mistakes, continuous behavior towards principles and values, responsibility, the ability to forgive one's mistakes, standing up for the right, and accepting responsibility for service. Only the indicators of faithfulness to covenants and truthfulness were placed in the first to third priorities, similar to our results. Interestingly, the indicators of admitting mistakes and failures, giving importance to others, and the ability to forgive others' mistakes were in the top half of the priorities in this study, which may be justified considering the difference in students' majors (20).

In the study by Shahbazian Khonoig and Hosni (21), which investigated the role of moral and social intelligence in the risky behavior of students at Kurdistan University of Medical Sciences, the results showed that those with high moral intelligence behave in accordance with personal and social values and are less likely to engage in risky behavior, highlighting the importance of moral intelligence. One of the goals of our study was to familiarize students with the concept of moral intelligence and improve it (21).

In the study by Jahanian et al. (22), which investigated the moral intelligence status of master's degree students at Kharazmi University, the moral intelligence score was 75.04 ± 8.34 , very close to but slightly lower than our results. The order of indicators was: Faithfulness to promises, giving importance to others, truthfulness, admitting mistakes and failures, acting based on principles and values, the ability to

forgive one's own mistakes, taking responsibility, accepting responsibility for service, the ability to forgive others' mistakes, and standing for the right. Only in the indicators of faithfulness to promises, truthfulness, and acting based on principles, values, and beliefs was the study similar to ours. In this study, there was a weak but positive relationship between moral intelligence and the age of the students. There was a significant difference in the moral intelligence of different educational groups, with female students scoring higher than male students. There was also a significant difference in the moral intelligence of single and married students. In our study, the score of married women was higher and increased with academic semesters, which was consistent with the above results (22).

5.1. Limitations

The specificity of the statistical sample to the medical students of Kermanshah limits the generalization of the findings to other students. It is suggested that future research should study a wider statistical population. Additionally, it would be beneficial to conduct qualitative and mixed-method research to investigate the effect of these and other psychological variables, such as personal intelligence, self-compassion, and sense of coherence, on academic performance.

5.2. Conclusions

According to the total score of students' moral intelligence, which was 76.29 ± 9.80 and evaluated as good, the status of moral intelligence among the medical students of Kermanshah Medical School is in a good state. However, there is room for improvement to reach very good and excellent levels. Notably, the top three indicators—faithfulness to covenants, acceptance of responsibility to serve people, and truthfulness—are essential characteristics of a doctor and should be emphasized. On the other hand, the three indices of the ability to forgive others' mistakes, being actively interested in others, and admitting mistakes and omissions were among the lowest. These areas need to be strengthened and emphasized for medical students as future doctors. Proper planning and training should be implemented to improve these indices.

Footnotes

Authors' Contribution: Reza Shahmoradi, data collection; Mohammad Mehdi Khazaei, entering information into the software, the initial idea; Elham Niromand, for the final draft; Mohammad Rasool Khazaei, the initial draft of the research management article.

Conflict of Interests Statement: The first author and the corresponding author have a familial relationship.

Data Availability: The dataset presented in the study is available on request from the corresponding author during submission or after publication.

Ethical Approval: IR.KUMS.REC.1400.260 .

Funding/Support: This study was done with the financial support of Kermanshah University of Medical Sciences.

Informed Consent: Completing the questionnaires was voluntary and optional, and the data was recorded anonymously and confidentially and coded.

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