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Original Article

Unveiling the Link between Moral Competence and Hope in Medical Sciences Students: A Cross-sectional Analysis

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Abstract

Introduction: Given the significance of hope in psychological well-being and the role of moral competence in managing professional challenges, this study aimed to investigate the relationship between hope and moral competence in undergraduate students of Tabriz University of Medical Sciences.

Methods: In this descriptive correlational study, 438 undergraduate students of different fields at Tabriz University of Medical Sciences completed the individual and social profile form, Moral Competency Inventory (MCI), Oxford Happiness Questionnaire (OHQ), and Trait Hope Scale using stratified sampling. The data were analyzed using descriptive statistics, Pearson correlation, and multiple linear regression tests.

Results: The mean (SD) of agency and pathways dimensions of hope was 23.00 (5.11) and 23.15 (5.08), respectively, in the range of 4 to 32. The mean moral competence score was 73.43 (SD = 8.37), ranging from 20 to 100, while the mean happiness score was 34.01 (SD = 6.14) on a scale of 8 to 48. There were positive and significant relationships between agency and pathways dimensions of hope and ten moral competencies ($P < 0.01$); between agency and happiness ($r = 0.496$, $P < 0.01$); and between pathways and happiness ($r = 0.484$, $P < 0.01$). More moral competence and happiness are related to higher agency and pathways. Younger age and education in nursing school are linked to higher pathways and studying in nursing, health, and rehabilitation faculties is related to higher agencies.

Conclusion: More hopeful students are more likely to pursue competencies, and more morally competent students have better reasons to feel hopeful in moral dilemmas. Since competencies are learnable, universities should emphasize moral competence training.

Introduction

As described by Snyder, the concept of hope is essential in positive psychology. Hope is defined as contemplating one's goals, being motivated to work towards them, and identifying how to achieve them.[1] This hopeful thinking process directs individuals toward their personally valued goals[2,3] and involves monitoring progress and regulating behavior and thinking based on emotional feedback. It's important to note that hope is an active cognitive process rather than a passive emotion that only emerges during difficult times.[3] Numerous studies have shown that hope is positively associated with positive affect,[4] self-worth,[5,6] psychological well-being,[7] and student persistence in college.[8,9] Additionally, hope is negatively related to depression,[10] anxiety,[11] burnout,[12,13] and negative emotions.[4] Given its significance, exploring the factors linked to people's hope is crucial.

Perceived job competence among trainees correlates with increased hope, which positively influences the trainees' perceived job competence.[14] Self-determination theory highlights competence as one of the three intrinsic psychological needs, the fulfillment of which enhances self-motivation.[15] Hope can be fostered through enriching experiences. Firstly, competence provides individuals with options and resources. Secondly, it generates a sense of achievement and determination through successful experiences, goal attainment, and obstacle-overcoming, reinforcing feelings of agency and purpose. Thirdly, possessing competence signifies overcoming previous inadequacies by gaining the necessary skills to navigate work demands, enabling individuals to tackle challenges effectively. This realization also instills the belief that obstacles can be surmounted, impacting hope levels across various life domains, especially in vocational education settings.[16] Moral competence, an aspect of overall competence, is elucidated in Lennick and Kiel's theory. They define it as actions guided by moral principles such as integrity, responsibility, compassion, and forgiveness. These principles are further conceptualized into objective moral competencies that underlie ethical behavior.

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Lennick and Kiel proposed a tool for assessing moral intelligence, encompassing ten moral competencies like "Consistent adherence to principles," "Respecting values and beliefs," and "Truthfulness," among others.[17]

During clinical internships, medical sciences students may face unethical behavior and struggle to address it due to a lack of courage, leading to moral distress.[18,19] Hence, possessing competence is crucial for managing and resolving moral conflicts and delivering quality care with a moral outlook.[20] Furthermore, moral competence can serve as a means of coping with moral distress.[21] Previous research has highlighted a reciprocal link between job competence and hope.[14] In this investigation, we explored moral competence as a facet of general competence using a specific questionnaire. Therefore, our current study aimed to examine the relationship between hope and moral competence in undergraduate students of Tabriz University of Medical Sciences.

Materials and Methods

This study is cross-sectional research that was conducted From April to June 2023. The study population was all undergraduate students in the faculties of nursing and midwifery, health, nutrition and food sciences, paramedicine, rehabilitation, and management who were studying at Tabriz University of Medical Sciences at the time of the study. Entry criteria included being an undergraduate student, not a guest student (i.e., those who temporarily attend our university for a few semesters before returning to their home institution), and being willing to participate in the study. Using the results of the study conducted by Olusola and Ajayi[22] (z = 1.96, SD = 15.70, and d = 0.10 SD), the formula of $n = z^2s^2/d^2$, and the probability of 10% sample loss, the sample size of 438 people was calculated. Stratified sampling was employed as the sampling technique. In this regard, the number of samples needed for each faculty was determined based on the ratio of students in each faculty to the total undergraduate student population. Then, the list of students in the classes was prepared, and a number was assigned to each student. Students were randomly selected using a random number table. The Regional Ethics Committee of Tabriz university of medical sciences (Code: IR.TBZMED.REC.1398.1217) approved the study. The researcher referred after the class or internship ended to avoid disrupting the students' educational process. Upon receiving permission from the professor, the researcher explained the voluntary nature of participation in the study and the confidentiality of information and then obtained informed consent forms. The researcher asked the students to complete the questionnaire completely. Obviously, the student had the right not to answer any question that was uncomfortable for him. Questionnaires were collected that day or the next day if the student requested. At the beginning of the study, the research team determined that if a questionnaire has more than ten percent unanswered questions, it will be discarded.

The data was collected using individual social characteristics form, the Trait Hope Scale, the Moral Competency Inventory (MCI), and the Oxford Happiness Questionnaire (OHQ). Individual social characteristics form assessed some individual and academic characters of students. Snyder et al[3] designed the Trait Hope Scale in 1991 to measure trait hope through 12 items, including two subscales of agency and pathways, each of which has four items, and the other items are filler ones. In all the statements, an 8-point response scale from 1 (Definitely false) to 8 (Definitely true) is used, where a high score indicates a higher level of trait hope. The scale and its subscales have shown good psychometric properties. The instrument's psychometric properties in Iran have also been confirmed by internal consistency with Cronbach's alpha coefficient, criterion, and divergent validity.[23] Lennick and Kiel developed the MCI[17] in 2007, a 40-item inventory with ten subscales. The answer format is with a five-point Likert scale from "never, score 1" to "in all situations, score 5". Each person's score is divided by two, so the range of scores is between 20 and 100. Each subscale has four items with a score of 2 to 10. A low score in subscale indicates the need to do things to improve it. A study in Iran reported the internal consistency coefficient of the scale as 0.94 and confirmed its face and content validity.[24] We used a short version of the Oxford Happiness Inventory (OHI) with eight items. Six responses from completely disagree to completely agree are used in all items. A high score indicates higher happiness. There is a strong and significant correlation between the short and full versions of the tool ($r = 0.93$, $P < 0.001$).[25] In this study, following the pilot study with 30 students, Cronbach's alpha coefficients for the internal consistency of the MCI, agency, pathway, and happiness scales were 0.88, 0.82, 0.82, and 0.72, respectively.

The mean, standard deviation, frequency, and frequency percentage were used to describe the main variables and individual social characteristics. First, the normality of the variables' distribution was checked using the skewness and kurtosis test. Considering the normality of the distribution of the variables, the relationship between moral competence, happiness, and hope was investigated using the Pearson correlation test. Also, a multiple linear regression model was used to control confounding factors. SPSS-13 software was used for data analysis. P value < 0.05 was used to indicate statistical significance.

Results

Four hundred thirty-eight undergraduate students of Tabriz university of medical sciences, with an average age of 21.46 (2.021) and a previous semester GPA of 17.07 (1.28) in the range of 0 to 20, participated in this study—their personal and social characteristics, detailed in Table 1. Notably, 74 (16.90%) students had participated in ethics-related workshops, and 221 (50.46%) had passed

the ethics unit during university studies.

The average hope score was 46.16 (9.34) from 8 to 64. The overall score of MCI was 73.43 (8.37) in the range of 0 to 100. Table 2 shows the mean scores of MC dimensions.

Table 1. Frequency and Frequency percentage of personal and social characteristics of the students (N = 438)

Variables	N (%)
Gender	
Female	158 (36.10)
Male	280 (63.90)
Marital status	
Married	29 (6.60)
Single	409 (93.40)
Schools	
Nursing &midwifery	156 (35.61)
Rehabilitation	67 (15.29)
Paramedicine	114 (26.02)
Health	49 (11.18)
Nutrition and food sciences	31 (7.07)
Management and medical information	21 (4.79)
Term	
1-2	116 (24.48)
3-4	108 (24.65)
5-6	136 (31.05)
7-8	47 (10.73)
Missing	31 (7.08)
Housing	
Living in dormitory	189 (43.20)
Living in non-dormitory	245 (55.90)
Missing	4 (0.90)
Economic status of the family	
Income equals expenditure	257 (58.67)
Income greater than expenditure	94 (21.46)
Income less than expenditure	74 (16.90)
Missing	13 (2.96)

The highest score was related to the subscales of "keeping promises," "honesty," and "accepting responsibility for personal choices." The average happiness score (6.14) was 34.01, from 8 to 48.

The results of the Pearson correlation test showed that all dimensions of MCI are significantly related to agency and pathway dimensions of hope (Table 2). There is a positive and significant relationship between agency and happiness ($r = 0.49$, $P < 0.01$) and pathway and happiness ($r = 0.48$, $P < 0.01$). The multiple linear regression test results showed that more moral competence and happiness are related to higher agency and pathways (Table 3). Also, younger age and education in nursing school are linked to higher pathways. Studying in nursing, health, and rehabilitation faculties is related to higher agencies (Table 4).

Discussion

Most of the students had scores of moral competence at medium to high levels, which aligns with the results of recent studies.[26,27] Also, the hope score was higher than the medium, which aligns with Seirup and Rose's study.[28] Regarding the primary purpose of the study, the results showed that there is a positive and significant relationship between students' agency and pathway dimensions of hope and their all-moral competencies, which is in line with the results of previous studies.[29-31] Moral competence seems to provide a framework for the correct functioning of people. This correct performance strengthens people's hope to achieve goals. The motivation to choose the right goals and pathways also increases as a dimension of hope. Hope is considered inseparable from meaning and purpose.[32] Hopeful thinking is implicitly directed toward goals that are meaningful to the individual and consistent with one's values. Goals that match a person's core interests and values are known as self-concordance of goals. These goals are usually pursued with more sustained effort and are more likely to be achieved.[33] Therefore, self-consistent goals must be related to deeply rooted and essential agentic thoughts to sustain action and stimulate thought pathways to overcome obstacles in the goal attainment process. In

Table 2. Mean and standard deviation of moral competencies in students of Tabriz University of Medical Sciences and its dimensions relationship with Hope (N = 438)

Dimensions of moral competence	Mean (SD)	Agency *r**	Pathway *r*
A. Acting consistently with principles, values and, beliefs	15.3128(2.47)	0.26**	0.26**
B. Telling the truth	15.7511(2.28)	0.26**	0.32**
C. Standing up for what is right	13.9452(2.80)	0.23**	0.26**
D. Keeping promises	16.2260(2.44)	0.30**	0.37**
E. Taking responsibility for personal choices	15.5365(2.31)	0.35**	0.37**
F. Admitting mistakes and failures	15.0388(2.27)	0.29**	0.37**
G. Embracing responsibility for serving others	12.9018(2.99)	0.16**	0.18**
H. Actively caring about others	14.0594(2.56)	0.18**	0.22**
I. Ability to let go of one's own mistakes	14.4703(2.54)	0.44**	0.47**
J. Ability to let go of others' mistakes	13.6233(3.01)	0.25**	0.34**

* Pearson correlation test, $0 \le r \le 0.29$: Weak correlation; $0.3 \le r \le 0.69$: Moderate correlation; $0.7 \le r \le 1$: Strong correlation; ** $P < 0.001$.

Table 3. Factors related to agency thinking in Tabriz University of Medical Sciences students

Coefficients[a]	Unstandardized coefficients		Standardized coefficients	t	Sig.
Model	**B**	**Standard Error**	**Beta**		
(Constant)	-1.65	4.31		-0.38	0.70
Female	-0.85	0.50	-0.08	-1.69	0.09
Age	-0.23	0.12	-0.09	-1.83	0.07
Single	-0.10	0.86	-0.005	-0.12	0.90
Term	0.03	0.12	0.01	0.28	0.78
Living in dormitory	0.06	0.40	0.007	0.17	0.87
GPA	0.24	0.19	0.06	1.25	0.21
Income greater than expenditure	0.06	0.57	0.005	0.10	0.92
Income less than expenditure	0.91	0.62	0.07	1.46	0.15
Studying in Nursing & Midwifery school	1.94	0.73	0.12	2.66	**0.008**
Studying in Rehabilitation school	2.64	0.84	0.14	3.15	**0.002**
Studying in Paramedicine school	0.72	0.82	0.04	0.88	0.38
Studying in Health school	2.19	0.94	0.10	2.31	**0.02**
Studying in Nutrition and Food Sciences school	-0.92	1.05	-0.04	-0.88	0.38
Happiness	0.403	0.045	0.49	10.16	**<0.001**
Moral competence	0.15	0.03	0.25	5.18	**<0.001**

[a] Dependent Variable: Agency thinking.
Variables that were significantly associated with hope, i.e., had a *P* value less than 0.05, were bolded.

Table 4. Factors related to pathways thinking in Tabriz University of Medical Sciences students

Coefficients[a]	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
Model	**B**	**Standard Error**	**Beta**		
(Constant)	4.75	4.29		1.107	0.27
Female	-0.60	0.50	-0.06	-1.20	0.23
Age	-0.26	0.12	-0.11	-2.13	**0.03**
Single	-0.31	0.85	-0.02	-0.37	0.71
Term	0.04	0.12	0.02	0.32	0.75
Living in Dormitory	-0.18	0.40	-0.02	-0.46	0.64
GPA	-0.18	0.19	-0.04	-0.94	0.35
Income greater than expenditure	0.50	0.57	0.04	0.88	0.38
Income less than expenditure	0.73	0.62	0.05	1.17	0.24
Studying in Nursing & Midwifery school	1.54	0.73	0.1	2.12	**0.03**
Studying in Rehabilitation school	1.63	0.83	0.09	1.95	0.05
Studying in Paramedicine school	-0.28	0.82	-0.01	-0.34	0.74
Studying in Health school	0.66	0.94	0.03	0.70	0.48
Studying in Nutrition and Food Sciences school	-0.72	1.04	-0.03	-0.7	0.49
Happiness	0.37	0.04	0.45	9.31	**<0.001**
Moral competence	0.2	0.03	0.32	6.64	**<0.001**

a. Dependent Variable: pathways thinking.
Variables that were significantly associated with hope, i.e., had a *P* value less than 0.05, were bolded.

addition, hope increases the possibility of using moral competencies. In this way, it can be explained that when a person is in a moral dilemma, if he is anxious, it causes him to have a negative evaluation of that situation, thus avoiding it. Conversely, hope or expectation (agent) that one can pursue paths to a goal or outcome can resist the reinforcing nature of anxious appraisals[34] and use them as paths to goal achievement if equipped with moral competence.

In this study, happiness was related to two dimensions of hope. In a study, there was a moderate direct correlation between hope and the subscales of feeling and positive experience of happiness and an inverse relationship with the negative feeling and experience subscales. Also, some components of happiness predicted the level of students' hope.[35] Happiness is one of the most critical concepts in positive psychology[36]; it has four components: life satisfaction, positive emotions, good mood, lack of

negative emotions, and mood. The characteristics of a happy person are having a more robust immune system, living longer, enjoying better social relationships and dealing effectively with difficult situations, more creativity and success, and a greater desire to help others. Happy people can better face problems and overcome their life problems[37] and, as a result, have better hope.

According to the results, age was found to be a significant factor in determining students' pathway levels. However, the relationship between age and hope remains a topic that requires further exploration. An integrative review by Esteves et al found an inconsistent relationship between age and hope, with only two out of seven reviewed studies demonstrating a significant positive correlation. This ambiguity highlights the need for further comprehensive research to clarify the role of age in influencing hope levels.[38]

Studying in faculties of nursing, health, and rehabilitation was identified as a determining factor of higher hope in students. In a study, the amount of hope differed among different fields of study.[39] The existence of more job opportunities in these fields and the different educational conditions of the faculties can be influential factors for this result. One study showed that people's hope increases in learning environments where the psychological need for competence is met.[14] Therefore, it seems necessary to compare the learning environments of different faculties.

It is one of the few studies investigating the relationship between moral competence and hope. Among the limitations of the present study is that the study was conducted among the students of Tabriz University of Medical Sciences, and the results cannot be generalized to all students. Considering that hope is a process, examining it with only a cross-sectional study is not enough, so longitudinal and qualitative studies are recommended to obtain comprehensive information. Considering that 63% of the participants were male, this could affect the interpretation of the results. Therefore, it is necessary to manage this effect in future studies.

Conclusion

This study shows there is a positive and significant relationship between students' agency and pathway dimensions of hope and their all-moral competencies. More hopeful students are more likely to pursue competencies, and more morally competent students have better reasons to feel hopeful in moral dilemmas. Since competencies are learnable, universities should emphasize moral competence training.

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Research Highlights

What is the current knowledge?

- Hope is a key psychological construct linked to well-being, academic persistence, and reduced negative emotions.
- Moral competence, as a component of professional competence, helps individuals navigate ethical challenges in clinical settings.
- While general job competence has been associated with hope, the specific relationship between moral competence and hope remains underexplored.

What is new here?

- This study introduces moral competence as a predictor of hope, expanding beyond traditional psychological and occupational factors.
- Since competencies can be learned, the focus of universities on teaching moral competencies are recommended.

Authors' Contribution

Conceptualization: Hossein Ebrahimi, Zahra Allahyari, Maryam Vahidi, Hossein Namdar Areshtanab.
Data curation: Hossein Ebrahimi, Zahra Allahyari, Maryam Vahidi, Hossein Namdar Areshtanab.
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Funding acquisition: Hossein Ebrahimi.
Investigation: Zahra Allahyari, Maryam Vahidi.
Methodology: Hossein Ebrahimi, Maryam Vahidi, Hossein Namdar Areshtanab.
Project administration: Hossein Ebrahimi.
Resources: Hossein Ebrahimi, Zahra Allahyari, Maryam Vahidi.
Software: Maryam Vahidi.
Supervision: Hossein Ebrahimi.
Validation: Hossein Ebrahimi, Zahra Allahyari, Maryam Vahidi, Hossein Namdar Areshtanab.
Visualization: Maryam Vahidi, Hossein Namdar Areshtanab.
Writing–original draft: Maryam Vahidi, Hossein Ebrahimi.
Writing–review & editing: Hossein Ebrahimi, Zahra Allahyari, Maryam Vahidi, Hossein Namdar Areshtanab.

Competing Interests

The authors declare that they have no competing interests.

Data Availability Statement

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to their containing information that could compromise the privacy of research participants.

Ethical Approval

This study was approved by the Regional Research Ethics Committee at the Tabriz University of Medical Sciences (Code: IR.TBZMED.REC.1398.1217). Also, to collect the data, the necessary coordination with the relevant officials was made. While providing the necessary explanations to students, their informed consent to participate in the study was obtained. The principle of data confidentiality was respected by the researchers.

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