



Perceptions of the Hidden Curriculum and Professional Ethics Among Medical Interns: A Cross-Sectional Study at Shahroud University of Medical Sciences

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Received: 17 July, 2026; Revised: 8 September, 2026; Accepted: 12 September, 2026

Abstract

Background: The hidden curriculum plays an important role in shaping professional identity, values, and ethical development among medical trainees.

Objectives: This study aimed to examine the relationship between the hidden curriculum and professional ethics among medical interns at the Shahroud University of Medical Sciences.

Methods: This descriptive-analytical cross-sectional study was conducted among 92 internal medicine medical interns at Shahroud University of Medical Sciences. Data were collected using a demographic information checklist, the Hidden Curriculum Questionnaire (HCQ), and the Professional Ethics Questionnaire (PEQ). Higher PEQ scores indicate greater professional ethics, whereas higher HCQ scores indicate greater alignment with the hidden curriculum. Data were analyzed using SPSS version 18 with descriptive statistics and inferential analyses, including t tests, analysis of variance (ANOVA), and correlation analyses, as appropriate.

Results: Among 92 interns, 59.8% were female, and 46.7% were aged 24 - 25 years. The mean HCQ score was 176.30 ± 27.25 , with the highest domain scores in critical thinking, evaluation, faculty architecture, curriculum objectives, and socio-emotional atmosphere. The mean PEQ score was 75.56 ± 7.32 , with the highest domain scores in teaching and research, collegial relationships, physician-community relations, financial relationships, and confidentiality. Gender was not significantly associated with HCQ or PEQ scores ($P = 0.607$ and $P = 0.527$, respectively), whereas age showed significant differences in both HCQ and PEQ scores ($P = 0.001$ for both). A negative but non-significant correlation was observed between HCQ and PEQ scores ($r = -0.221$, $P = 0.68$).

Conclusions: Although the mean scores for both the hidden curriculum and professional ethics were above average, targeted educational planning and ongoing monitoring are essential to sustain these strengths and to further enhance professional ethical standards among medical interns.

Keywords: Medical Intern, Hidden Curriculum, Professional Ethics, Medical Education, Shahroud University of Medical Sciences

1. Background

Universities play a major role in developing human resources and preparing a skilled workforce to meet

societal needs. This role is especially critical in medical universities, which are responsible for training healthcare professionals and supporting the health system. Therefore, educating competent students with appropriate professional characteristics is essential for improving the quality, dignity, and effectiveness of healthcare professions (1-4).

In medical education, learners acquire knowledge not only through the formal curriculum but also through the hidden curriculum. The hidden curriculum encompasses the implicit messages, values, and attitudes conveyed through the educational environment, organizational culture, evaluation systems, interpersonal interactions, and even physical spaces. These unspoken influences can strongly shape medical interns' professional identity, emotional development, empathy, values, and behaviors, sometimes supporting and sometimes contradicting the formal curriculum (5-13).

Professional ethics is a fundamental component of medical practice and should be integrated into clinical education rather than taught solely as theoretical content. Ethical and professional development during the university years is particularly important because interns form patterns of behavior and decision-making that influence their future clinical practice. Studies have shown that role modeling, clinical experience, and the educational context contribute to the development of professional ethics, and that strengthening ethics education can substantially improve the quality of healthcare services (14-23).

2. Objectives

Given the close relationship between the hidden curriculum and professional ethics, examining trainees' perceptions of these concepts may help improve educational quality and ethical development in clinical settings. Although previous research has explored various aspects of medical education, evidence regarding the relationship between the hidden curriculum and professional ethics among medical interns at Shahrood University of Medical Sciences remains limited. Therefore, the present study aimed to determine the relationship between the perceived hidden curriculum and professional ethics among medical interns at Shahrood University of Medical Sciences (24).

3. Methods

3.1. Study Design and Participants

This descriptive-analytical study was conducted among all medical interns at Shahrood University of Medical

Sciences during the 2023 - 2024 academic year using a census sampling method. The inclusion criteria were being a medical intern at the study site and providing informed consent to participate.

3.2. Data Collection and Instruments

Data were collected using three validated instruments: a demographic checklist (age and gender), the Hidden Curriculum Questionnaire (HCQ) developed by Tahmasebzadeh et al., which consists of 66 items across 11 dimensions and is scored on a five-point Likert scale (higher scores indicate a stronger presence of the hidden curriculum; Cronbach's $\alpha = 0.97$) (25), and the Professional Ethics Questionnaire (PEQ), which consists of 20 items across five subscales and is scored on a five-point Likert scale (higher scores indicate greater adherence to professional ethics; Cronbach's $\alpha = 0.84$) (26).

3.3. Statistical Analysis

Statistical analyses were performed using SPSS version 18. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were used to summarize the data. Inferential statistics, including independent t tests, one-way analysis of variance (ANOVA), paired t tests, and Pearson correlation coefficients, were used to examine the relationships between variables.

4. Results

A total of 92 medical interns participated in this study. Most participants were female ($n = 55$; 59.8%) and were in the 24 - 25-year age group ($n = 43$; 46.7%).

The highest mean scores for the hidden curriculum dimensions were related to students' critical thinking (20.59 ± 5.47), evaluation (18.04 ± 3.34), faculty building architecture (17.79 ± 4.51), curriculum objectives (17.28 ± 4.74), and the faculty's social and emotional climate (16.44 ± 4.10). The overall mean hidden curriculum score was 176.30 ± 27.25 (Table 1).

The highest mean scores among the professional ethics subscales were related to education and research (21.92 ± 3.04), communication with colleagues (16.60 ± 2.48), physician and society (12.83 ± 1.68), financial relationships between physician and patient (12.38 ± 2.39), and confidentiality (11.73 ± 1.51). The overall mean professional ethics score was 75.56 ± 7.32 (Table 2).

The highest mean hidden curriculum score was observed among female participants (176.40 ± 29.98) and those aged 25 - 26 years (177.90 ± 19.91) (Table 3).

The highest mean professional ethics score was observed among female students (76.24 ± 8.63) and those

Table 1. Mean Scores of the Hidden Curriculum Among Medical Interns by Subscales

Variables	Mean	SD	Min	Max
Curriculum Objectives	17.28	4.74	7	27
Course Content	12.69	3.39	5	19
Teaching Methods of Professors	13.67	2.34	5	18
Evaluation / Assessment	18.04	3.34	6	24
Faculty Building Architecture	17.79	4.51	6	26
Social and Administrative Structure	16.28	2.85	8	21
Faculty-Student Interaction	15.03	4.02	6	25
Interpersonal Relationships	15.78	3.55	7	23
Social and Emotional Climate	16.44	4.10	7	26
Faculty Rules and Regulations	12.67	3.60	5	21
Students' Critical Thinking	20.59	5.47	7	35
Overall Score	176.30	27.25	106	231

Table 2. Mean Scores of Professional Ethics Among Medical Interns by Subscales

Variables	Mean	SD	Min	Max
Physician and Society	12.83	1.68	8	15
Professional Communication with Colleagues	16.60	2.48	12	20
Confidentiality	11.73	1.51	8	15
Education and Research	21.92	3.04	11	30
Financial Relationships Between Physician and Patient	12.38	2.39	6	20
Overall Score	75.56	7.32	52	100

aged 24 - 25 years (77.95 ± 7.48) (Table 4).

No statistically significant differences were observed between male and female medical interns in the mean hidden curriculum score ($P = 0.607$) or professional ethics score ($P = 0.527$). However, statistically significant differences were observed across age groups for both the hidden curriculum and professional ethics ($P = 0.001$ for both) (Table 5).

Correlation analysis revealed a weak negative correlation between professional ethics and the hidden curriculum ($r = -0.221$); however, this relationship was not statistically significant ($P = 0.68$), suggesting no predictable linear association between the two variables (Table 6).

5. Discussion

Universities, as the primary institutions of higher education, play a central role in developing human resources and preparing the specialized workforce required for societal progress. This role is particularly important in medical universities, which are responsible for educating future healthcare professionals and supporting the health system. Accordingly, higher

education is expected not only to provide scientific and professional training but also to align learners with the values, ideals, and ethical expectations of society (1, 3, 27, 28).

In the present study, 92 medical interns participated; most were female (59.8%) and aged 24 - 25 years (46.7%). The overall mean score for the hidden curriculum was 176.30 ± 27.25 . Among its dimensions, the highest mean scores were related to critical thinking, evaluation, faculty infrastructure, curriculum objectives, and the faculty's social and emotional atmosphere. The overall mean score for professional ethics was 75.56 ± 7.32 , with the highest scores observed in education and research, communication with colleagues, physician-society relationships, financial relationships between physicians and patients, and confidentiality. No statistically significant differences were found between male and female interns in hidden curriculum or professional ethics scores ($P = 0.607$ and $P = 0.527$, respectively). However, statistically significant differences were observed across age groups for both measures ($P = 0.001$). In addition, Pearson correlation analysis revealed a weak negative correlation between the hidden curriculum and professional ethics ($r = -0.221$) that was not statistically

Table 3. Mean Scores of the Hidden Curriculum Among Medical Interns by Demographic Variables (Age and Gender)

Variables	Mean	SD
Gender		
Male	176.16	22.98
Female	176.40	29.98
Age		
24 - 25	175.45	33.06
26 - 27	177.90	19.91
Above 27	172.37	29.88

Table 4. Mean Scores of Professional Ethics Among Medical Interns by Demographic Variables (Age and Gender)

Variables	Mean	SD
Gender		
Male	74.56	4.76
Female	76.24	8.63
Age		
24 - 25	77.95	7.48
25 - 26	74.00	6.10
Above 27	71.50	9.19

Table 5. Differences in Mean Scores of Hidden Curriculum and Professional Ethics by Demographic Variables Among Medical Interns

Variables	Hidden Curriculum (P-Value)	Professional Ethics (P-Value)
Gender	0.607	0.527
Age	0.001	0.001

significant ($P = 0.68$), indicating no predictable linear relationship between the two variables.

These findings may reflect the complex and multidimensional nature of the hidden curriculum. The hidden curriculum comprises the implicit values, norms, and messages conveyed through educational structures, interpersonal relationships, evaluation systems, the physical environment, and organizational culture, all of which can influence students' professional identity and ethical development. Therefore, professional ethics in medical education is shaped not only by formal teaching but also by the broader learning environment in which students are trained (5-13).

The findings of the present study are consistent with previous research. Khoshrang et al. emphasized the role of professors, organizational climate and culture, managerial structure, and learning situations in shaping students' learning experiences and professional ethics through the hidden curriculum (29). Tahmasebzadeh et al. found significant relationships between most hidden curriculum

components and professional adaptation, although not all dimensions were strong predictors (25). Abbaspour et al. also showed that the hidden curriculum should be consciously considered in universities to promote inquiry, scientific identity, and ethical orientation (30). Likewise, Momtazian et al. reported a positive and significant relationship between the hidden curriculum and research ethics (31), while Yazdkhasti et al. demonstrated its positive association with emotional intelligence (32). Similar findings were reported by Yeganeh et al. regarding engineering ethics (33), by Nazari Zare et al. regarding professional ethics among medical interns (34), and by Arab Baferani et al. regarding moral intelligence (35). Collectively, these studies support the view that the hidden curriculum can significantly affect ethical, emotional, and professional dimensions of student development.

5.1. Strengths and Limitations

One strength of the present study is that it addressed an important topic that had not previously been examined at

Table 6. Pearson Correlation Coefficients Between Professional Ethics and the Hidden Curriculum

Variables	Professional Ethics	Hidden Curriculum
Professional Ethics	1	-0.221 (P = 0.68)
Hidden Curriculum	-	1

this university, while also assessing multiple dimensions of both the hidden curriculum and professional ethics. However, several limitations should be noted, including the cross-sectional design and the use of self-administered questionnaires, which may be subject to reporting bias.

5.2. Conclusions

Although the mean scores for both the hidden curriculum and professional ethics were above average, targeted educational planning and ongoing monitoring are essential to maintain strengths and further enhance professional ethical standards among medical interns.

Acknowledgements

The authors express their sincere gratitude to all medical interns at Shahroud University of Medical Sciences who participated in this study, as well as the research vice-chancellery for their support.

Footnotes

AI Use Disclosure: The authors declare that no generative AI tools were used in the creation of this article.

Authors' Contribution: Study Concept and Design: H. R. M. and H. R.; Analysis and Interpretation of Data: H. V. and O. G.; Drafting of the Manuscript: H. R. M.; Critical Revision of the Manuscript for Important Intellectual Content: H. R. M. and O. G.; Statistical Analysis: H. V.

Conflict of Interests Statement: The authors declare that there is no conflict of interest regarding the publication of this study.

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

Ethical Approval: This article is part of a General Medicine thesis approved by Shahroud University of Medical Sciences with the ethics code IR.SHMU.REC.1402.111, approved at Shahroud University of Medical Sciences.

Funding/Support: This research was conducted without financial support from any institution or organization.

Informed Consent: Written informed consent was obtained from all participating medical interns prior to study enrolment. Participation was entirely voluntary, and participants were assured of the confidentiality and anonymity of their response data.

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