Exploring the relationship between facilitating factors and adherence to nursing ethical standards

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Abstract

Background Professional ethics is a cornerstone of the nursing profession, with its observance closely linked to the enhancement of nursing services and the satisfaction of service recipients. This study aimed to assess nurses' compliance with professional ethical codes and its relationship with factors that facilitate such compliance.

Methods This descriptive-analytical, cross-sectional study was conducted in 2021 in a hospital located in southern Iran. A total of 312 nurses were selected using the census method and participated in the study. Data were collected through researcher-designed questionnaires that assessed compliance with professional ethical codes and factors facilitating such compliance. Data analysis was conducted using SPSS software version 23, employing t-tests, ANOVA, Pearson's correlation coefficient, and multiple linear regression.

Results The mean scores for compliance with professional ethical codes and factors facilitating compliance were 127.94 ± 8.52 (out of 170) and 98.31 ± 6.22 (out of 180), respectively. Nurse-related factors ($\beta = 0.323$, $p < 0.001$), patient-related factors ($\beta = 0.286$, $p = 0.002$), and management factors ($\beta = 0.277$, $p = 0.003$) emerged as significant predictors of compliance with professional ethical codes. Significant differences in compliance scores were observed based on gender ($p = 0.01$), marital status ($p = 0.02$), level of education ($p = 0.04$), and the number of patients under observation per work shift ($p = 0.03$). Additionally, the mean score of factors facilitating compliance with ethical codes was higher among female nurses ($p = 0.03$) compared to male nurses.

Conclusion Compliance with professional ethical codes was rated as acceptable, while the factors facilitating compliance were rated as moderate. Given the predictive role of facilitating factors, targeted improvements in these areas could significantly enhance nurses' adherence to professional ethical codes.

Keywords Professional ethics, Facilitating factors, Performance, Nurses

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Introduction

Providing high-quality health, treatment, and rehabilitation services while adhering to the principles of professional ethics is a core mission of the nursing profession [1]. Professional ethics represents a rational thought process that encompasses a set of ethical actions and reactions as defined by professional organizations, aimed at fostering desirable social relationships and guiding professional duties [2]. Essentially, professional ethics comprises a set of principles and behavioral standards that professionals in various fields are obligated to follow in their roles [3]. While professional ethics is crucial across all professions, it assumes particular significance in nursing due to the profound impact of nurses' ethical and responsible behavior on patients' health and recovery outcomes [4]. The intrinsic nature of nursing involves attention to and respect for human rights, including cultural rights, dignity, autonomy, and respectful interactions [5, 6]. The unique characteristics of nursing, its professional honor, and the operational demands in healthcare settings have driven the development of nursing codes of ethics worldwide. These codes, established by professional nursing associations, have significantly improved the quality of healthcare services and strengthened public trust in healthcare providers [7].

A foundational principle in nursing care is training nurses to adhere to professional ethics [8]. Compliance with ethical standards is integral to the nursing profession, ensuring the delivery of services at the highest possible standard to maintain and promote public health [9]. Key principles of professional ethics for nurses, particularly those in hospital settings, include punctuality, fairness, respect for human dignity, confidentiality, accountability, excellence in fulfilling job responsibilities, effective communication, and refraining from the misuse of professional authority [10, 11]. Adherence to these principles not only enhances the quality of nursing care but also plays a critical role in patient recovery [12]. Nurses who uphold these ethical principles are compelled to prioritize patient health and well-being, acting conscientiously and in accordance with professional standards [13].

Ethical conduct ensures that nurses perform their duties competently, avoiding harm to patients while contributing to their improvement and recovery [14]. This adherence to ethics is especially vital in nursing due to the frequent interaction with patients who are physically and emotionally vulnerable [13]. Many patients also lack adequate knowledge of healthcare practices and are heavily reliant on nurses for guidance and care, further underscoring the importance of professional ethics in this field [12]. Despite the critical role of ethics in nursing, several studies have highlighted suboptimal adherence levels. Research in both Iran and globally has revealed deficiencies in nurses' ethical performance. For instance, Dehghani et al. [15], Mohajjel Aghdam et al. [16], and Lovborg et al. [17] reported weak compliance among nurses in areas such as accountability, quality of patient care, and respect for patients. These studies attributed many ethical lapses to deficiencies at the managerial level in patient care settings. Other research has indicated that nurses, despite being aware of ethical principles, fail to comply with them adequately [18, 19, 20]. Jafari et al. [21], Kalvand et al. [22], and Saber et al. [23] reported varying levels of compliance with ethical codes, ranging from moderate to unfavorable. Browning's study revealed that nurses often have low awareness of ethical principles in patient care [24].

Healthcare environments, particularly hospitals, are evolving rapidly, presenting nurses with complex ethical dilemmas in their daily practice [25]. Consequently, nurses face a higher risk of moral conflict than other healthcare professionals [26]. Addressing the barriers to compliance with ethical codes is therefore critical to ensuring patient care meets the highest ethical standards [27]. Monitoring adherence to professional ethical codes and identifying the factors that facilitate such compliance can provide valuable insights into improving ethical practices. The exploration of factors facilitating adherence to professional ethics among nurses has gained increasing attention in recent studies [28, 29]. Identifying and strengthening these facilitating factors within hospital environments offers the potential to enhance ethical compliance among nurses [29]. According to Dehghani et al. [30], the factors facilitating compliance with professional ethics can be categorized into three main domains: managerial, nurse-related, and patient-related factors. Managerial factors include effective organizational structures, clear job descriptions, and the provision of training opportunities, all of which emphasize the role of managers in fostering ethical practices [30]. Nurse-related factors include knowledge, skills, motivation, and positive attitudes toward ethical standards [30]. Patient-related factors involve patients' awareness of nurses' duties, understanding of their illnesses, and reasonable expectations from healthcare providers [30].

These facilitating factors significantly influence nurses' adherence to professional ethical codes, shaping their behavior in alignment with ethical standards [28]. Strengthening these factors through effective management interventions can create favorable conditions for nurses to improve their ethical practices [29]. A lack of adherence to professional ethical codes among nurses disrupts the implementation of quality improvement programs in hospitals and poses a significant challenge to achieving organizational goals [31]. By examining these ethical codes and identifying their facilitating factors, healthcare institutions can implement effective strategies

to improve ethical practices and enhance the overall quality of care. Given the limited number of studies that have simultaneously investigated adherence to professional ethical codes and the factors facilitating such compliance, this study aims to assess the level of compliance among nurses and its relationship with facilitating factors in a hospital in southern Iran. The study also examines the influence of demographic variables on ethical compliance. The findings will provide health policymakers and practitioners with actionable insights to design targeted behavioral and training strategies for promoting ethical practices among nurses.

Methods
Design and setting
This descriptive-analytical study was conducted cross-sectionally at Hazrat Ali Asghar (AS) Hospital in Shiraz, southern Iran, from August to November 2021.

Participants
In this study, the census method was used to select 312 nurses. Inclusion criteria included the willingness to participate in the study and employment in various clinical departments of the hospital, and exclusion criteria were unwillingness to participate in the study and employment in non-clinical departments such as the administrative and financial departments of the hospital.

Instruments
The data collection instruments were a three-section questionnaire. The first section of the questionnaire included the nurses' demographic information (namely age, work experience, gender, marital status, level of education, type of employment, number of shifts per month, and number of patients under observation per work shift). The second section encompassed the professional ethics codes used in Esmaeilpourzanjani et al.'s study [32]. This section includes 34 ethical guidelines in five dimensions: nurses and society (3 items), nurses and professional commitment (13 items), nurses and providing clinical services (12 items), nurses and colleagues in the treatment team (2 items), and nurses, education, and research (4 items). The items were scored based on a Likert scale, ranging from always (5 points), often (4 points), sometimes (3 points), rarely (2 points), and never (1 point). To determine compliance with the code of professional ethics among the participants, unacceptable (score 34–68), moderate (score 69–103), acceptable (104–138), and excellent (139–170) grades were used [32].

Finally, the third section of the questionnaire included factors facilitating compliance with professional ethical codes, developed by Dehghani et al. [30]. This section consisted of 36 items assessing the contribution of each factor that facilitated compliance with professional

ethical codes in management dimension (22 items), nurse-related dimension (9 items), and patient-related dimension (5 items) on a five-point Likert scale, ranging from very much (5 points), a lot (4 points), often (3 points), low (2 points), and very low (1 point). To determine the position of facilitating factors for compliance with professional ethics codes, the categories of unacceptable (score 36–72), moderate (score 73–109), acceptable (110–146), and excellent (147–180) were used [30].

The validity of the questionnaire was confirmed by 15 faculty members and experts in the field of health care management from Tehran, Shiraz, and Isfahan universities of medical sciences. Content Validity Index (CVI) and Content Validity Ratio (CVR) were 0.83 and 0.87 for the questionnaire on compliance with professional ethical codes and 0.76 and 0.84 for the questionnaire on facilitating factors, respectively. To measure reliability, a sample of 40 nurses was pre-tested, and Cronbach's alpha coefficient was 0.89 for the questionnaire on compliance with professional ethical codes and 0.87 for the questionnaire on facilitating factors. Accordingly, the reliability of the questionnaires was accepted. Moreover, the validity and reliability of the professional ethical code compliance questionnaire and the facilitating factors questionnaire were confirmed in Esmaeilpourzanjani et al.'s [32] and Dehghani et al.'s [30] studies.

Procedures and statistical analysis
To collect data, two researchers (SHB and FRD) visited the hospital on different weekdays during the morning, evening, and night shifts to distribute and collect questionnaires. Participation in the study and completion of the questionnaire forms were voluntary, in adherence to ethical considerations. The research objectives were explained to the participants, and the confidentiality of their responses was emphasized. Verbal consent was obtained before distributing the questionnaires, which were completed and returned independently. The average time required to complete each questionnaire was 15 min. To minimize disruptions in the provision of nursing services, the researchers (SHB and FRD) requested that nurses complete the questionnaires during periods of lower workload.

The collected data were analyzed using SPSS software (version 23). Pearson's correlation coefficient was applied to examine the relationship between compliance with professional ethical codes and facilitating factors in relation to the nurses' age and work experience. Additionally, a T-test was performed to assess differences in compliance with professional ethical codes and facilitating factors based on gender, marital status, and level of education. An ANOVA test was conducted to investigate differences in compliance with professional ethical codes and facilitating factors in relation to type of employment,

number of shifts, and number of patients under observation. Lastly, multiple linear regression analysis was performed to evaluate the simultaneous effects of factors facilitating compliance with professional ethical codes and demographic variables on compliance with professional ethical codes.

Results

The participants' mean age was 31.32±7.18 years, with most nurses (53.20%) in the age group of <30 years. The average work experience was 6.24±6.38 years, with the majority (71.47%) having less than 10 years of experience. Most respondents were female (65.06%), married (77.88%), bachelor's degree holders (88.46%), and project workers (58.34%), with 10–20 shifts per month (45.84%). For most nurses, the number of patients under observation per work shift was more than three (83.98%) (Table 1).

According to the results, the mean score of compliance with professional ethical codes was 127.94±8.52 (out of 170), indicating an acceptable status of this concept among the examined nurses. The highest mean scores in the five dimensions—'nurse and society,' 'nurse and

professional commitment,' 'nurse and providing clinical services,' 'nurse and colleagues of the treatment team,' and 'nurse, education, and research'—were attributed to the following items: "I pay special attention to vulnerable groups such as the elderly, people with disabilities, physical disabilities, and the like" (4.01±0.48), "When implementing nursing interventions and clinical decisions, I consider moral responsibilities as well as professional responsibilities" (4.12±0.43), "I perform nursing care respecting the human rights, social values, and religious beliefs of patients" (4.08±0.46), "I treat other nurses, professors, and students with respect at different professional levels" (4.14±0.38), and "I do not use my professional position to convince the patient to participate in the research and training of nursing students" (3.93±0.51) (Table 2).

The results showed that the mean score of factors facilitating compliance with professional ethical codes was 98.31±6.22 (out of 180), reflecting a moderate position among the nurses. The highest mean scores in the managerial, nurse-related, and patient-related dimensions were as follows: "Effective supervision of nurses' performance" (2.68±0.96), "Nurses' positive attitudes towards professional ethics standards in nursing" (3.66±1.08), and "Patients' appropriate behavior with nursing staff" (2.68±0.81) (Tables 3 and 4).

The results of multiple linear regression analysis regarding the simultaneous effect of factors facilitating compliance with professional ethical codes and demographic variables on compliance with professional ethical codes revealed that the main variables in the model, using the "Enter" method, were nurse-related factors, patient-related factors, management factors, gender, marital status, and number of patients under observation per work shift. Table 5 presents the β values for the significant variables, indicating the priority of compliance with professional ethical codes. The results showed that the coefficient of determination for the processed model (R Adjusted) was 0.64, suggesting that 64% of the variance in compliance with professional ethical codes could be explained by the model variables. The linear equation for compliance with professional ethical codes obtained from multiple linear regression analysis is as follows:

$$Y = 0.447 + 0.323x1 + 0.286x2 + 0.277x3 + 0154x4 + 0.121x5 + 0.117x6$$

Where:

- **Y**: Score of compliance with professional ethical codes.
- **x1**, **x2**, **x3**, **x4**, **x5**, **x6**: Variables influencing compliance with professional ethical codes (as shown in Table 5).

Table 1 Frequency distribution of participants (n_312)

Variable	Categories	Frequency	Percentage
Age (years)	<30	166	53.20
	30–40	127	40.71
	>40	19	6.09
Total	------	312	100
Work experience (years)	<10	223	71.47
	10–20	76	24.36
	>20	13	4.17
Total	------	312	100
Gender	Male	109	34.94
	Female	203	65.06
Total	------	312	100
Marital status	Single	69	22.12
	Married	243	77.88
Total	------	312	100
Level of education	Bachelors'	276	88.46
	Master's	36	11.54
Total	------	312	100
Type of employment	Formal	82	26.28
	Contractual	7	2.24
	Contract-Based	19	6.09
	Project	182	58.34
	Corporate	22	7.05
Total	------	312	100
Number of shifts per month	<10	28	8.97
	10–20	143	45.84
	>20	141	45.19
Total	------	312	100
Number of patients under observation per work shift	2	7	2.24
	3	43	13.78
	>3	262	83.98
Total	------	312	100

Table 2 Frequency distribution of compliance with professional ethical codes by nurses

Dimensions	Ethical codes	Mean	SD
Nurse and society	1. I try to reduce pain and suffering, prevent diseases and improve the health of society.	3.98	0.91
	2. I pay special attention to vulnerable groups such as the elderly, people with disabilities, physical disabilities, and the like.	4.01	0.48
		3.64	0.83
	3. In crises, natural disasters, and disease epidemics, I perform my duties, taking into account the necessary precautions.		
	Total (out of 15)	**11.63**	**1.08**
Nursing and professional commitment	4. When implementing nursing interventions and clinical decisions, I consider ethical responsibilities as well as professional responsibilities.	4.12	0.43
		3.24	0.92
	5. To the extent of my duties and powers, I try to provide a safe and healthy environment for the patient.	3.75	0.81
	6. I ensure the patient's safety by attending on time, performing professional duties, and keeping a complete record of the performed care.	3.61	0.85
		3.87	0.76
	7. Based on the professional standards obtained from the results of valid research, I provide the best care to the patient.	3.73	0.79
		3.41	0.92
	8. I perform all nursing interventions by maintaining human dignity and respecting the patient and his family.	3.38	0.96
	9. I do my best for the patient's secrets, respecting his privacy, respecting individual independence, and obtaining informed consent.	3.68	0.88
		3.71	0.84
	10. By identifying and reporting professional errors of myself and colleagues, I prevent possible injuries to the patient.	3.91	0.67
		3.78	0.81
	11. In case of a mistake in nursing interventions, I honestly explain to the patient, and I respect honesty and fairness in all situations.	3.89	0.73
	12. I maintain and improve my physical, mental, social, and spiritual abilities.		
	13. To maintain my professional competence, I keep my knowledge and skills up to date.		
	14. I have the ability and sufficient knowledge to provide effective, safe care without direct supervision, and I am accountable for my actions.		
	15. I refrain from accepting any gift or privilege from the patient or his relatives.		
	16. I act in such a way that the prestige of the nursing profession is not questioned.		
	Total (out of 65)	**48.08**	**3.46**
Nurse and providing clinical services	17. Regardless of age, gender, economic status, culture, religion, and physical ability, I fulfill the wishes of the patient.	3.92	0.55
		4.08	0.46
	18. I provide nursing care respecting the patient's human rights, social values , and religious beliefs.	3.86	0.78
	19. I introduce myself to the patient by mentioning my name, title, and professional role.	3.59	0.91
	20. Establish a relationship with the patient with mutual trust to understand his needs and concerns.	3.73	0.86
	21. Before carrying out any nursing interventions, I provide enough information to enable the informed acceptance or rejection of medical services.	3.94	0.53
		3.12	1.01
	22. In order to empower the patient to improve self-care, I teach him and his family.	3.79	0.81
	23. In emergency situations outside the work environment, I care for the sick or injured.	3.69	0.89
	24. I transfer patient information only for purposes related to health and for the benefit of the patient.	3.81	0.79
	25. I use the necessary precautions for the safety of nursing procedures.	3.94	0.48
	26. I report any objections and problems of the patient to the head of the department.	4.03	0.39
	27. I refrain from taking actions that require undermining the principles of ethics, law, and Shariah, even if requested by the patient.		
	28. I respect the patient's privacy while performing any nursing intervention.		
	Total (out of 60)	**45.5**	**3.36**
Nurse and colleagues of treatment team	29. I treat other nurses, professors, and students with respect at different professional levels.	4.14	0.38
	30. In case of facing any kind of ethical challenge, I consult with the ethics committee of the hospital to make a decision.	3.36	0.96
	Total (out of 10)	**7.5**	**1.02**
Nurse, education, and research	31. Regarding the use of patients in the education of nursing students, I respect the patient's rights and related ethical considerations.	3.74	0.85
		3.93	0.51
	32. I do not use my professional position to convince the patient to participate in the research and training of nursing students.	3.89	0.74
		3.67	0.88
	33. If the patient and his family do not cooperate in the training of nursing students, I will not influence the process of providing services to him.		
	34. As a clinical nurse, I try to improve the clinical skills and capacities of nursing students.		
	Total (out of 20)	**15.23**	**1.12**
Compliance with professional ethics codes in total (out of 170)		**127.94**	**8.52**

Table 3 Frequency distribution of facilitating factors of professional ethical codes from nurses' perspective

Dimensions	Facilitating factors	Mean	SD
Management	1. Paying attention to employees' abilities and skills during work division	2.37	0.63
	2. Effective supervision of nurses' performance	2.68	0.96
	3. Existence of standard ethical codes (e.g., responsibility, etc.) in nursing	2.55	0.74
	4. Compilation of suitable shifts for nursing staff in compliance with optimal working conditions	2.38	0.59
	5. Provision of sufficient personnel according to number of patients and conditions of each department	2.35	0.48
	6. Appropriate interpersonal communication between supervisors and nursing staff	2.59	0.76
	7. Holding retraining courses according to needs of nursing staff	2.60	0.79
	8. Holding retraining courses regarding professional ethics standards and their facilitating factors	2.48	0.77
	9. Existence of written job descriptions in the field of nursing care in the internal departments, surgery, etc.	2.67	0.91
	10. Using experienced professors as educators of ethical and legal issues during nursing education and continuing education programs	2.49	0.74
	11. Installing educational posters and pamphlets on nursing ethics on notice boards and visible points of the departments.	2.41	0.61
		2.33	0.58
	12. Holding joint meetings of managers of different clinical categories with nursing staff and exchanging opinions according to ethics	2.54	0.54
		2.64	0.92
	13. Sufficient moral and legal support of senior managers for nursing staff	2.21	0.39
	14. Existence of evaluation and objective tools for frequent assessment of nurses' capabilities in the field of nursing care	2.24	0.41
		2.53	0.55
	15. Providing suitable comfort facilities for patient companions in hospital	2.65	0.88
	16. In case of unethical cases, timely warning and support of managers to comply with professional ethics standards	2.46	0.43
		2.38	0.37
	17. Existence of specialized nursing ethics committees in hospital	2.51	0.58
	18. Availability of suitable facilities and equipment in the department to provide quality and sufficient care	2.61	0.86
	19. Work division method among nursing staff by tasks (departmental tasks are separated, and each task is assigned to a nurse)		
	20. Work division method among nursing staff by cases (one or more patients are taken care of by one nurse)		
	21. Work division method among nursing staff in a team method (Several patients is taken care of by a care team with a leader)		
	22. Work division method among nursing staff by the basic or primary method (giving an average number of patients (2–4 patients) to one nurse from the time of admission to discharge)		
	total (out of 110)	**54.67**	**3.31**
Nurse-related	23. Nurses' positive attitudes towards professional ethics standards in nursing	3.66	1.08
	24. Sufficient motivation and interest of nursing staff in their profession	3.54	0.94
	25. Providing basic needs of employees, including sufficient income or rest	2.95	0.83
	26. Satisfaction with service department	3.43	0.91
	27. Existence of proper interpersonal communication between colleagues and other treatment team	3.49	0.85
	28. Ability of critical thinking, decision-making, and making correct judgments in morally challenging situations	3.42	0.79
	29. Sufficient scientific knowledge and awareness about nursing care	3.63	0.96
	30. Sufficient technical skills and practical capabilities of nurses	3.57	0.88
	31. Strong religious foundations of nurses to fulfill their professional and humanitarian duties	3.46	0.74
	total (out of 45)	**31.15**	**2.19**
patient-related	32. Awareness of patients and their companions about nurses' duties	2.47	0.66
	33. Patients' awareness of the diagnosis, treatment, and prognosis of their disease	2.55	0.72
	34. Patients' familiarity about when and how to provide nursing services such as dressing, drug therapy, etc.	2.52	0.69
	35. Patients' appropriate behavior with nursing staff	2.68	0.81
	36. Expectations from nursing staff instead of patients and their companions	2.27	0.57
	Total (out of 25)	**12.49**	**1.41**
Factors facilitating compliance with professional ethics codes in total (out of 180)		**98.31**	**6.22**

The results showed significant differences among the nurses' mean scores of compliance with professional ethical codes by gender ($p=0.01$), marital status ($p=0.02$), level of education ($p=0.04$), and the number of patients under observation per work shift ($p=0.03$). Accordingly, the mean score of compliance with professional ethical codes was higher among female nurses (131.26 ± 8.51 out of 170), married nurses (129.12 ± 8.61 out of 170), nurses with master's degrees (128.22 ± 8.76 out of 170), and nurses observing two patients per shift (130.27 ± 8.86 out of 170) compared to others. Moreover, the mean score of factors facilitating compliance with ethical codes was significantly higher among female nurses ($p=0.03$, 100.27 ± 7.14 out of 180) than male nurses (Table 6).

Discussion

This study aimed to examine nurses' compliance with professional ethical codes and its relationship with factors facilitating compliance. The findings indicated that the mean score for compliance with professional ethical

Table 4 Correlation coefficients between compliance with professional ethical codes and facilitating factors of these codes from nurses' perspective

Facilitating factors		professional ethical codes					
		Nurse and society	Nursing and professional commitment	Nurse and providing clinical services	Nurse and colleagues of treatment team	Nurse, education, and research	**Professional ethical codes (total)**
	Management factors	r = 0.441 P = 0.003	r = 0.532 P = 0.002	r = 0.598 P < 0.001	r = 0.681 P < 0.001	r = 0.381 P = 0.03	r = 0.519 P = 0.001
	Nurse-related factors	r = 0.687 P < 0.001	r = 0.617 P < 0.001	r = 0.694 P < 0.001	r = 0.609 P < 0.001	r = 0.521 P = 0.002	r = 0.622 P < 0.001
	Patient-related factors	r = 0.392 P = 0.002	r = 0.419 P = 0.001	r = 0.556 P < 0.001	r = 0.328 P = 0.003	r = 0.309 P = 0.004	r = 0.389 P = 0.002
	Facilitating factors (total)	r = 0.517 P = 0.002	r = 0.531 P = 0.001	r = 0.603 P < 0.001	r = 0.537 P = 0.001	r = 0.412 P = 0.010	r = 0.529 P = 0.001

Table 5 Variables affecting compliance with professional ethical codes by nurses

Variable description	Variables	Not standardized coefficients		Standardized coefficient β	t-statistics	Sig. (*P*-value)
		β	Standard error			
---	(Constant)	0.447	0.261	-	1.523	0.001
x_1	Nurse-related factors	0.323	0.064	0.318	5.108	< 0.001
x_2	Patient-related factors	0.286	0.068	0.271	3.124	0.002
x_3	Management factors	0.277	0.071	0.263	3.081	0.003
x_4	Gender	0.154	0.046	0.141	1.112	0.01
x_5	Marital status	0.121	0.038	0.098	1.054	0.03
x_6	Number of patients under observation per work shift	0.117	0.029	0.087	1.016	0.04

codes was at an acceptable level. Consistent with this study, research by Dehghani and Kermanshahi [33], Esmaeilpourzanjani et al. [32], and Asare et al. in Ghana [34] reported high levels of ethical performance among nurses. Similarly, in Shaali and Shahriari's study, midwives' compliance with professional ethical codes was rated as acceptable [35]. In Yousefzadeh et al.'s study, where professional ethics were observed during work shifts, most nurses and midwives demonstrated average performance in this regard [36]. Beykmirza et al. found that adherence to ethical codes among nurses had a mean score of 86.71 out of 112, indicating an optimal level [14]. Saeeidi et al. also reported that 59.8% of nurses were in a favorable position regarding moral performance [29]. These results affirm that nurses, despite their heavy workloads, generally perceive their compliance with ethical codes to be adequate. However, other studies, such as Saber et al.'s examination of ethical compliance in Iranian teaching hospitals, identified significant deficiencies in nurses' adherence to ethical principles during aggressive actions [23]. Ghoorchiani et al. [37] observed lower compliance with nursing ethical principles from patients' perspectives compared to nurses' self-assessments. Discrepancies in findings may stem from differences in patients' expectations and nurses' perceptions

of their adherence to ethical standards. Additionally, self-reported methods of data collection may lead individuals to overestimate their compliance.

The findings of this study highlighted that the highest mean score for the "nurse and society" dimension was for "special attention to vulnerable groups." This result aligns with Esmaeilpourzanjani et al.'s findings [32]. Sabeghi et al. [38] also reported that both nurses and patients recognized the importance of respecting human dignity. Vulnerable groups, due to their susceptibility to psychological and physical harm, require more attention and care. Religious and cultural values that emphasize honoring the elderly and disabled likely influence nurses' focus on these groups. The highest mean score in the "nurse and professional commitment" dimension was associated with "considering moral and professional responsibilities." This is consistent with Esmaeilpourzanjani et al.'s study [32], where nurses equated moral responsibilities with professional ones. Dehghani et al. [15] found that nurses adhered to ethical standards at rates of 40% for responsibility and 45% for improving patient care quality. Moral principles underpin the value of nursing care, as reflected in the Code of Ethics prepared by the Iranian Ministry of Health, which encompasses seven key dimensions: confidentiality, authority, benevolence, justice,

Table 6 Relationship between demographic variables with compliance with professional ethical codes and factors facilitating compliance with codes by nurses

Variables	Categories	Professional ethics Codes		Facilitating factors	
		Mean ± SD (From 170)	*P*-Value	Mean ± SD (From 180)	*P*-Value
Age	< 30	125.82 ± 7.14	0.08	97.28 ± 6.03	0.14
	30–40	127.58 ± 7.63		97.74 ± 6.17	
	> 40	130.42 ± 8.76		99.92 ± 7.11	
Work experience	< 10	124.98 ± 6.84	0.06	96.56 ± 5.72	0.10
	10–20	128.87 ± 7.72		99.09 ± 6.14	
	> 20	129.96 ± 8.64		99.28 ± 6.31	
Gender	Male	124.62 ± 7.43	**0.01**	96.35 ± 5.26	**0.03**
	Female	131.26 ± 8.51		100.27 ± 7.14	
Marital status	Single	126.76 ± 7.34	**0.02**	98.09 ± 6.04	0.05
	Married	129.12 ± 8.61		98.53 ± 6.34	
Level of education	Bachelor's	127.66 ± 7.91	**0.04**	96.97 ± 6.08	0.06
	Master's	128.22 ± 8.76		99.65 ± 6.47	
Type of employment	Formal	129.47 ± 8.76	0.13	99.79 ± 6.54	0.09
	Contractual	128.58 ± 8.14		98.88 ± 6.73	
	Contract-Based	127.83 ± 7.37		98.34 ± 6.47	
	Project	126.71 ± 7.72		97.07 ± 5.86	
	Corporate	127.11 ± 8.19		97.49 ± 6.17	
Number of shifts per month	< 10	129.75 ± 8.48	0.07	99.52 ± 6.41	0.11
	10–20	127.88 ± 8.63		98.67 ± 6.59	
	> 20	126.19 ± 7.79		96.74 ± 5.89	
Number of patients under observation per work shift	2	130.27 ± 8.86	**0.03**	100.12 ± 7.12	0.06
	3	129.01 ± 8.74		99.32 ± 6.17	
	> 3	124.54 ± 7.56		95.49 ± 5.31	

respect for human life, non-maleficence, and honesty. The study also revealed that the highest mean score in the "nurse and providing clinical services" dimension was for respecting human rights, social values, and patients' religious beliefs. This is consistent with Esmaeilpourzanjani et al. [32], who found that nurses prioritized patient privacy and respect for human rights. Similar results were reported by Dehghani et al. [15] and Vasegh Rahimparvar et al. [39], highlighting the importance of these aspects in nursing ethics. Other research has shown that respect for patients' dignity and religious beliefs remains a fundamental priority for nurses globally [40, 41]. However, studies by Bagheri et al. [42] and Dadkhah et al. [43] highlighted areas where patient rights were inadequately observed, particularly concerning privacy. Variations in compliance levels may result from differences in participants' education, experience, and settings. Regarding relationships within the treatment team, the highest mean score was for "respect for colleagues, professors, and students." This finding aligns with Esmaeilpourzanjani et al. [32], Bagheri et al. [42], and Vasegh Rahimparvar et al. [39], which emphasized the importance of professional communication and mutual respect within the healthcare team. Respectful interactions among colleagues foster opportunities for mutual learning and a supportive work environment.

The study further indicated that the highest mean score in the "nurse, education, and research" dimension was for not abusing professional authority to involve patients in research or education. Esmaeilpourzanjani et al. [32] reported a similar focus on respecting patients' rights in research contexts. Nurses appear to recognize the importance of respecting patients' autonomy and dignity, particularly when patients inadvertently become part of teaching or research activities. The findings demonstrated that female, married nurses with a master's degree and fewer patients under observation per shift scored higher on compliance with ethical codes. Similar trends were reported by Bagheri et al. [42], Jafari Manesh et al. [44] and Mokhtari Lakeh et al. [45], where female nurses outperformed males in ethical compliance. Women's empathetic and compassionate nature may contribute to their higher adherence to ethical principles. Married nurses may also display greater commitment due to their life experiences and maturity. Contradictory findings in Bagherinia et al.'s study [46], where single nurses showed higher compliance, could be due to differences in sample characteristics and contextual factors, such as education levels, work settings, and organizational support.

The mean score for factors facilitating compliance with professional ethical codes was moderate, with "effective supervision of nurses' performance" identified as the most significant management-related factor. Similar

results were reported by Dehghani et al. [30] and Jafari-anahlashkanani et al. [28]. Factors such as inadequate staffing, heavy workloads, and insufficient organizational support were highlighted as barriers to ethical compliance in several studies [30, 47]. Addressing these barriers and enhancing supervision and incentives could motivate nurses to adhere to ethical standards [48, 49]. The highest mean score for nurse-related factors was "positive attitudes towards professional ethics standards." This aligns with Yousefzadeh et al. [36] and Mokhtari Lakeh et al. [45], who emphasized the role of attitudes in predicting ethical commitment. Positive attitudes likely stem from nurses' awareness of the critical importance of ethical compliance. Finally, "appropriate behavior of patients with nursing staff" was the highest-scoring patient-related factor, consistent with other studies [28, 50]. Supportive and respectful patient behaviors likely encourage nurses to maintain ethical standards. Overall, the findings underline the importance of facilitating factors, including nurse-, patient-, and management-related aspects, in enhancing compliance with professional ethical codes. These factors serve as positive motivators, supporting ethical behavior and improving the quality of nursing care [30, 50, 51].

Limitations
One limitation of this study was the delay in completing the questionnaires by some nurses due to their busy schedules and the time-consuming nature of the data collection process. Another limitation was the lack of relevant studies available for direct comparison of findings. Additionally, as this was a monocentric cross-sectional study, caution is necessary when generalizing the results to other healthcare settings or operational contexts.

Conclusion
The findings indicated that the mean scores for compliance with professional ethical codes and facilitating factors were at acceptable and moderate levels, respectively. A significant statistical correlation was observed between compliance with professional ethical codes and facilitating factors, with the latter identified as predictors of compliance. These results highlight the need for health system managers to implement comprehensive educational planning to further familiarize nurses with professional ethical standards and enhance compliance through effective monitoring of nursing staff performance. Holding specialized training courses focused on professional ethics and increasing awareness in this field are essential strategies for improving adherence to professional ethical codes and fostering a culture of ethical excellence in nursing care.

Data availability
All the data is presented as a part of tables or figures. Additional data can be requested from the corresponding author.

Declarations

Ethics approval and consent to participate
This study is approved by Shiraz University of Medical Sciences Ethics Committee with the ID number of IR.SUMS.REC.1397.676. All the methods were carried out in accordance with relevant guidelines and regulations. Meanwhile, written informed consent was obtained from all subjects and/or their legal guardian(s). Human and animal guidelines are not applicable.

Consent for publication
Not applicable.

Competing interests
The authors declare no competing interests.

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