

# Assessment of The Effect of Interprofessional Professionalism Training On The Surgical Team Members' Perception of The Ethical Climate

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## Research Article

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# Abstract

## Background

The aim of present study was to assess the effect of interprofessional education concerning interprofessional professionalism on learners' perception of the ethical climate of the operating room.

## Method

The present study is quasi-experimental design. Learners include surgical residents, operating room technicians, and anesthesia technicians (n=130) that distributed to intervention and control groups. The objectives of the intervention were the development of competencies of ethics and professionalism (including communication, altruism, respect, and excellence). The educational strategy was interprofessional education and the main method of training was scenario-based learning. Participants completed the Olson Moral Climate Questionnaire before and one month after the intervention. We used descriptive tests (mean, SD, percentage), student t-test and ANOVA to compare the scores of learners in the intervention and control groups.

## Results

The results of the study showed that the scores of the learners in the intervention group 4.05 (0.31) improved significantly compared to the control group 3.35 (0.37) ( $P = 0.0001$ ). The scores of learners in the domain of "managers" improved higher and the domain of physicians improved lesser than other domains. There was no significant difference between the three groups of residents, operating room, and anesthesia technicians in terms of moral climate scores.

## Conclusion

In the present study showed the positive effect of interprofessional education interventions on individuals' perceptions of the operating room ethical climate. It is suggest that educational interventions be planned and implemented continuously in the educational systems and hospitals.

## Introduction

The ethical climate is one of the important factors in medical settings, especially the surgical department and operating room(1–4). An ethical c influences the ethical performance of an organization(5). According to Olson, the ethical atmosphere of hospitals is formed in the relationships of the employees with each other(3). Individuals working in the hospital as members of the health care system are required to observe the principles of professional ethics (6). The adherence of professional principles leads to improve the ethical atmosphere. These principles include respect for the human dignity and professional values of other professions, effective communication, adherence to teamwork values, considering personal differences, responsibility, and interprofessional collaboration culture, recognizing the roles and responsibilities of other team members, and managing ethical challenges in the occupational conflicts (7,

8). Adherence to professional ethics requires that individuals be committed to the professional values of the organization and not allow moral values to be compromised (6). Such an atmosphere is conducive to solving moral problems and improves the moral performance of employees (9). Ethical performance in the surgical department and operating room is an inevitable necessity (10). In the operating room, more stress may come into existence in the workplace than in other wards (11). Disruption of professional behavior has a negative impact on the atmosphere of the surgical ward (12). Several studies indicate an unfavorable ethical atmosphere in the operating room (13–15). According to Schroete's study on operating room nurses' perception of the expected morality and performance, 73% of nurses reported their personal experience of moral conflict (11). The results indicate that operating room staff often have difficulty in making decisions and resolving ethical conflicts (15). It can lead to unethical behaviors and consequently a lack of safe care (10, 16). Moral atmosphere affects moral performance, team performance, job satisfaction, and work efficiency (14, 17–19). The results of studies confirm the impact of an unfavorable moral atmosphere on the performance of the surgical team and subsequently, it disrupts the professional behavior of students and interns in various fields of surgery. (12, 17) Some believe that improving the ethical climate of the health care system will lead to better accountability of employees to moral tensions and reduce their dissatisfaction (17).

multidisciplinary teams and regularly evaluating the ethical climate and teaching ethical principles continuously to improve the ethical climate (16). According to studies, education can affect the moral climate (20, 21). The use of interprofessional education strategy in teaching professional ethics is recommended (22). Its emphasis is on developing ethical competencies in medical teams and improving safe care (23). IPE occurs when employees of two or more professions learn from each other and about each other so that they can work together in the workplace (24). interprofessional education provides opportunities for shared understanding between professional groups, language, and a common understanding of ethical judgments and decisions, which can reduce ethical conflicts (25). At present, ethical training occurs in uni-professional sessions. In the training program of the groups involved in the operating room, there is no codified training program on professional ethics interprofessionally. Since the interprofessional education has a positive impact on ethical, safe, and effective performance (25), and there are limited interventional studies in this area, our study aimed to determine the effect of interprofessional education concerning interprofessional professionalism on learners' perception of the ethical climate of the operating room.

## Method

The present study is quasi-experimental. Learners include 130 surgical assistants, operating room technicians, and anesthesia technicians of X Hospital in X. We divided them into intervention and control groups. We placed the general operating room and ENT staff in the intervention group (n = 78) and the staff of room eye surgery and orthopedics in the control group (n = 52). We included in the study two experts in the professionalism and ethics area as facilitators.

# Educational Intervention

The objectives of the intervention were defining the development of competencies of ethics and professionalism (including communication, altruism, respect, and excellence). The educational program was developed in an expert panel that five specialists in medical education, ethics, and clinical specialty were participated. Our educational strategy was interprofessional education and the main method of training was scenario-based learning. In this regard, in the expert panel sessions, we designed scenarios on interprofessional ethics in accordance with the educational objectives of the course with an emphasis on important and common ethical challenges in the surgical and operating room departments.

The educational content included team-based competencies, patient-centered values, interprofessional professionalism capabilities including communication, altruism, respect, and excellence that were explained in reports of IPEC 2011 and 2016, and guidance on professional ethics and behavior(15, 22, 24). We used active learning methods for teaching, including small group learning, case-based learning, scenario, interactive lectures, and instructional videos (12, 26–28). It is worth mentioning that all the methods were performed interprofessionally in such a way that members of different professions (including general surgery assistants, ENT surgeons, operating room technicians, and anesthesia technicians) participated in small groups.

In the first training session, we proposed research objectives and general concepts such as professional ethics, interprofessional professionalism, and interprofessional collaboration capabilities. In the sessions discussed educational cases in interprofessional small groups. In these groups, we asked participants to analyze the proposed cases, identify ethical challenges, and discuss their dimensions. In the next sessions, case-based learning methods were conducted, we asked participants to identify the problem, in addition to analyzing it, to find the suggested solutions to solve ethical challenges and dilemmas in interprofessional groups. In the next step, we asked them to reflect and share their experiences with other team members and discuss the causes of the ethical challenges and their solutions. Participants completed the Olson Moral Climate Questionnaire before and one month after the intervention. The control group received routine training including a lecture on ethical principles and interprofessional professionalism concepts.

We used a demographic questionnaire and Olson moral climate questionnaire to collect information. The Moral Climate Questionnaire, developed by Olson in 1998, consists of 26 items in five areas: "Communication with colleagues", "Physicians", "Patients", "Hospital" and "Managers" (Cronbach's alpha coefficient by 0.73)(8). This tool measures the perception of individuals of the moral climate prevailing in the operating rooms in the five dimensions using the Likert scale (from *almost never*= 1 to *almost always*= 5)(29, 30). Therefore, for better comparability, we standardized the scores of each area and the total scores by dividing by the number of items, and all had a range from 1 to 5) (17, 31). According to McDaniel's classification, the number 3.5 and above shows a positive view of the staff towards the hospital's ethical climate and a positive climate in general(3, 32).

We used descriptive tests (mean, SD, percentage) to summarize the data. We used descriptive tests (mean, SD, percentage), student t-test and ANOVA to compare the scores of learners in the intervention and control groups.

## **Results**

Participants include 130 members of different professions, including operating room technicians, anesthesiologist technicians, and surgical residents. We included the residents of various fields including general surgery residents, ENT surgery, ophthalmology, and orthopedics in the study. (Table 1).

Table 1  
Demographic characteristics of study participants

		Group				
		Intervention Group		Control Group		
		Frequency	Percent	Frequency	Percent	
<b>Gender</b>	Male	33	42.30	27	51.92	
	Female	45	57.69	25	48.07	
<b>Age</b>	20–30	25	32.05	27	51.92	
	30–40	27	34.61	21	40.38	
	40>	26	33.33	4	7.69	
<b>Profession</b>	Surgery residents	32	41.02	16	30.76	
	Surgical Technologist	28	35.89	22	42.30	
	Anesthesia technician	18	23.07	14	26.92	
<b>Academic degree</b>	BSc	40	51.28	35	67.30	
	MSc	5	6.41	0	0	
	Residency	32	41.02	17	32.69	
	Years	1st	8	25	0	0
		2nd	9	28.12	5	29.41
		3rd	9	28.12	6	35.29
		4th	6	18.75	6	35.29
<b>Working experience</b>	1–10	38	48.71	29	55.76	
	10–20	21	26.92	15	28.84	
	20>	19	24.35	8	15.38	

The result showed there was no significant difference between the participant's scores in the intervention and control groups in terms of ethical climate scores before the intervention ( $P = 0.21$ ). But after the intervention, the result showed a significant difference between the intervention and control groups ( $P = 0.0001$ ). ANOVA test showed that before the intervention ( $P = 0.40$ ) and after the intervention ( $P = 0.61$ ) there was no significant difference between the three groups of residents, operating room, and anesthesia technicians among intervention group in terms of moral climate scores. (Table 2).

Table 2  
The ethical climate scores of different profession in intervention group

Time	Group	Mean (SD)	p-value
Pre-test	Surgery residents	3.37(0.46)	0.40
	Surgical Technologist	3.45(0.47)	
	Anesthesia technician	3.37(0.44)	
Post test	Surgery residents	3.79(0.50)	0.61
	Surgical Technologist	3.68(0.48)	
	Anesthesia technician	3.82(0.46)	

The results of the study showed that the scores of the learners in the intervention group 4.05 (0.31) improved significantly compared to the control group 3.35 (0.37) (P = 0.0001). (Table 3).

Table 3  
The results of ethical climate scores by intervention and control groups, before and after the intervention

Time	Group	Mean(SD)	P-value
Pre-test	Intervention	3.44(0.47)	0.21
	Control	3.44(0.44)	
Post test	Intervention	4.05(0.31)	0.0001
	Control	3.35(0.37)	

## Discussion

Given the importance of the ethical climate in the operating room and its impact on the ethical and professional competence of employees, it is necessary to develop the educational program by effective strategy. The results of our study showed that the educational effect of the interventions was favorable and the scores of ethical climate improved significantly among the participants in interprofessional education interventions.

Due to the effect of an ethical climate on the quality of services teaching ethical principles in this area can be effective(17, 33). Teaching moral principles through interprofessional strategy are recommended as a way to improve ethical behaviors and consequently the moral climat(22, 29). Teaching methods including small group discussion, case-based learning method, scenario, problem-solving methods for teaching ethical values, and professionalism in the interprofessional approach were recommended(33–37) .As well, the small group discussion using the interprofessional strategy was introduced as a valid

teaching method(33). In our study, we benefited from the interprofessional approach in teaching values and interprofessional professionalism. In the present study, interprofessional sessions provided a situation for learners to be familiar with different perspectives of professions, face ethical conflicts, and experience conflict resolution ways in simulation settings. In Hwang's study, he suggested conducting ethical rounds in multidisciplinary teams to create a positive ethical climate (21). In line with the present study, Nadioo et al., in the qualitative study showed the positive impact of ethics education with an interprofessional approach and group discussions (38). Similar to the present study, Manspeaker used a case-based method and an interprofessional approach in the ethics workshop (36).

Interprofessional education provides the situations for interaction in a non-hierarchical environment for ethical accountability and the promotion of ethical performance(25). Through growing ethical competencies, interprofessional education empowers students to perform ethically and safely in clinical settings (25). The results of Silen's qualitative study interprofessional collaboration effectively improve the ethical climate (7). Effective cooperation, sharing of responsibility, and interaction with others are some components of interprofessional professionalism (24). In Silen's study, paying attention to the needs of patients and other colleagues, dividing responsibilities and interacting with other members to solve problems, and attending interprofessional sessions improves moral climate and is a prerequisite for providing safe care (8). The results of the present study showed that training interventions improve people's perception of the ethical climate, which is in line with the results of Silen's study. The findings of Collin's study showed that increased collaboration, shared responsibility, recognition of the roles and responsibilities of other team members in the operating room, and the creation of a safe team environment might be the best way for strengthening interprofessional performance and developing an ethical climate (39). The results showed that teaching ethics could improve the perception of the ethical climate in the operating room by discussing ethical issues with other team members to resolve difficult situations and make ethical decisions about interprofessional care creates a positive ethical climate (40). In line with the results of the present study that showed that educational interventions improve the ethical climate in the operating room.

In the present study, we examined individuals' perceptions of the moral climate in five domains. The results of our study showed that the score of the domain of physicians after the intervention in the intervention group was higher than the control group. In this domain, participation and consultation in treatment decisions, respect for each other's opinions, and trust between operating room staff and physicians are important (3). Participants' self-report scores in the "physicians" domain before the intervention were lower in both groups than in the other domain. Similar to the results mentioned in the study of Hong et al. and in the study of Abdullah Zadeh et al., the "domain of physicians" was reported as unfavorable compared to other domains, while in Jahromi's study, the domain of physicians was reported as desirable from the students' point of view (15, 16, 32). Learners' self-report scores in the "physicians domain" improved significantly after the intervention. The present results can be due to interprofessional education, which improved the learners' view of the ethical climate in this domain. Interprofessional education leads to respectful communication between them in the operating room, increases work efficiency, and thus leads to the proper advancement of surgery (14). Learners' scores in the "physicians"

domain improved less than in other domains. The results may be due to the fact that doctors do not trust the ability of operating room technicians. They do not use participatory decision-making skills. The hierarchical view that the physician is the only person who can save the patient can influence the results obtained.

Team leaders play an important role in creating a positive ethical climate (19). In the present study, the scores of the participants in the domain of "managers" before the intervention in the two groups were acceptable compared to other domains. In several studies similar to the present one, the domain of "managers" has a high score (16, 31, 41). Therefore, we can say that the managers and leaders of this section had a better understanding of their role as an effective factor in creating and developing a positive ethical environment and have been able to provide sufficient support to operating room staff and fulfill their responsibilities well. This indicates the importance of the role of leadership in creating a positive moral climate (10, 40). The results of the (19, 29)"managers" improved significantly after the intervention and were higher in the intervention group than the control group. In addition, the scores of the participants in system managers and education officials from the inter-professional approach and their continuous presence in sessions and educational processes, sincere communication, attention, and empathy of managers with learners of different professions, made this area improve more than other areas. The results of Rathert's study showed that the behaviors displayed by team leaders are effective in creating a positive climate (18). It is consistent with the results of the present study.

Among the domains of ethical climate, the domain of "colleagues" had the highest score after the domain of "managers" and improved significantly. Paying attention to each other's opinions about patient care and helping each other solve problems and issues of patient care in this area is important. In a study conducted by Pauly et al., they reported the domain of colleagues to be positive (42). The present results showed that improving the understanding of team members about colleagues' domain leads to improved group cooperation. This is the first condition for success in any surgery; it leads also the surgeons to establish more effective interactions and communication with operating room staff and other colleagues (15). Overall, the results of the present study showed that holding training sessions with an interprofessional approach causes the operating room team members to react better to tensions in the workplace. Holding these sessions resolves ethical conflicts in the stressful conditions of the operating room and improves the moral virtues and ethical climate and, consequently, provides quality services.

Non-equivalent group control and the limited sample size are some of the limitations of this study.

## **Conclusion**

In the present study, we reported the effect of interprofessional education interventions on individuals' perceptions of the operating room ethical climate. As for the domains of ethical climate, the domain of managers improved higher and the domain of physicians improved lesser than other domains. Due to the inevitable effect of the ethical climate on the quality of provided services, we suggest that educational interventions be planned and implemented continuously in the educational systems and hospitals.

# Declarations

## Ethics approval and consent to participate

The study was approved by the Ethics Committee at the National Agency for Strategic Research in Medical Education. (ID: IR.NASRME.REC.1400.055). The written consent forms were obtained from all participants. The work was conducted in accordance with the Declaration of Helsinki. All participants were provided with information on the study and gave consent.

## Consent for publication

'Not applicable'.

## Availability of data and materials

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

## Competing interests

The authors declare that they have no competing interests.

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## Authors' contributions

F.K. conceptualized and designed the study. A.H collected the data and analyzed the data. F.K. interpreted data. A.H and F.K. wrote the main manuscript text. All authors have met criteria for authorship and had a role in preparing the manuscript. Also, all authors approved the final manuscript.

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