



# The Exploration of Inter-Professional Relationships from the Perspective of Operating Room Students: A Qualitative Study

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## Abstract:

**Introduction:** Appropriate communication between healthcare team members and patient influences health outcomes and improves job satisfaction. There is a higher need to effective communication in the operating room due to the heavy workload. Understanding the factors affecting the relationship between healthcare professionals from the perspective of students can help design appropriate strategies for improving professional practice and the quality of care in clinical settings. The aim of this study was to explore inter-professional communication from the perspectives of operating room students using a qualitative design.

**Methods:** A qualitative study using a conventional content analysis method was performed. Participants were consisted of bachelor degree students of operating room in university in Guilan university of Medical Sciences of Iran. They were chosen using a purposive sampling method. Semi-structured interviews were conducted for data collection until data saturation was achieved. The data was analyzed using the content analysis method suggested by Graneheim and Lundman. The criteria described by Guba and Lincoln were used for ensuring the rigor.

**Results:** The data analysis led to the development of three themes and twelve subthemes: "The effective Inter-professional communication" with the sub-themes of 'continuous scientific communication', 'interaction management', 'empathy/emotional support' and 'participatory decision making'; "dysfunctional professional communication" with the sub-themes of 'limited values', 'marginalized communication', 'confusion in the work load' and 'destroyed preconceptions'; "the clear vision of the link between professions" with the sub-themes of 'the enhanced perception of self', 'independence and competency', 'participatory learning' and 'holistic care of the patient'.

**Conclusion:** According to the experiences of operating room students, providing optimal clinical conditions, enhancing cooperation and effective Inter-professional are required for improving the quality of care and protecting public health.

**Keywords:** Professional communication, operating room students, qualitative research, content analysis

## 1. Introduction

The importance of communication in the human life is so high that the main growth infrastructure, development and personal harms are related to the process of communication(1). Also, the effective team work has been recognized as a solution to address the growing shortage of personnel and training costs, increasing expectations of patients and reducing errors(2).

In the healthcare system, collaboration is performed with a focus on the patient's needs and the outcomes of the care plan. In this regard, the cooperation between paramedics and physicians consists of the teamwork, shared decision making about healthcare programs and resolving patient care's issues(3). However, if shared decision making and teamwork in healthcare programs for resolving patient care's issues are not performed, negative consequences occur in patient's outcomes(2). The inappropriate communication may lead to mistakes in the patient's diagnosis, lose of information related to the patients and low patient's participation in the patient care(1). There is a need to more and effective communicate in operating rooms due to heavy workload and various complications(4, 5).

Collaboration and appropriate communication between healthcare team members lead to the patient's health improvement in personal and social levels (6) and their job satisfaction(7). Such effective communication improves patient safety, reduce patient treatment costs, increase quality of care (8, 9) and reduce patient's mortality(10). Inter-professional communication and collaboration, using the knowledge and experiences of colleagues for decision making help with the identification of individuals' abilities(11). Meantime, the effective and dynamic interaction of students with healthcare team members, instructors, clinical environment and its elements, increases their knowledge and skills (12) and develop their professional identity(13). Therefore, it is expected that the clinical environment provides opportunities for using the useful experiences of students in patient care(14). However, the results of research in this area indicates a lack of collecting information regarding students' experiences in clinical settings(15, 16). In the study by Moatari and ramazani with the aim of exploring nursing students' perspectives of learning in the clinical setting, students did not have positive perspective regarding clinical settings(16). Also, in the study of Pourghane with the aim of understanding the experiences of nursing students on clinical education, students' experiences indicated a lack of appropriate communication in clinical settings(17). However, the

results of various studies show the need for an optimal clinical environment through the provision of proper communication between healthcare staff (11, 17, 18). In the study of Alavi and Abedi with the aim of the exploration of the concept of effective instructor in clinical education, the students stated that appropriate learning was provided if appropriate communication and more friendly atmosphere for learning would be provided(18).

Obstacles to obtaining optimal clinical learning experiences in medical sciences students can reduce the efficiency of students and reduce the quality of services in the community. Since that care in the operating room is performed through communication between healthcare professionals(19), inappropriate communication can negatively affect inter-professional communication(20). Understanding the factors affecting the relationship between healthcare professionals from the perspective of students can help design appropriate strategies for improving professional practice and the quality of care in clinical settings.

Many quantitative researches are available on communication in the healthcare system and its impact on the outcomes of patient care, education and professional practice(21). But, Understanding the experiences of students is only acceptable using a qualitative approach. Qualitative research, the researcher allows the researcher to enter the inner world of participants and specify the meanings shaped by a culture(22). Since understanding the factors affecting communication between healthcare professionals can help design appropriate strategies for improving professional practice, this study was conducted to explore inter professional communication from the perspectives of operating room students using a qualitative design.

## 2. Methods

### 2.1. Study Design

This was a qualitative study using a conventional content analysis method. The main aim in this study was “exploration of inter-professional communication from operating room students’ perspectives” and the main question asked in this study was “how is inter-professional communication from operating room students’ perspectives? Students participated in face-to-face individual semi-structured interviews in private places convenient to them. In total, 18 individual and 3 group interviews with the duration of 40-55 minutes were performed. The interviews were started with a few open-ended questions including “will you describe your experiences of the operating room?”, “Please describe your experiences of human relationships in the operating room.” Probing questions were asked to improve the depth of the interviews as follow: ‘please describe it more’ and ‘what do you mean?’ During the recruitment process, the next interviewee was selected based on the need for the clarification of answers provided by the previous interview. The interviews were continued until data saturation was reached as no new data was collected to add variations to the findings.

### 2.2. Population and Setting

Participants were consisted of 32 operating room students in Guilan university of Medical Sciences of Iran. The inclusion criteria were having the experience of clinical placement in the operating room and willingness to participate in this study. They were selected using a purposive sampling method. Before the interviews, the aim of the study was described to the participants. Also, they were informed about their rights during the study process and the probability of withdrawal from the study at any time without being penalized. Those who agreed to participate in this study were asked to sign the written informed consent form. Maximum variation in sampling was considered in terms of age, gender and experience in operating rooms.

### 2.3. Analysis of Findings

The interviews were transcribed verbatim and read several times and coded according to the process of data analysis in qualitative research. The data collection and analysis was performed concurrently. After the transcription of the interviews, they were read several times to obtain the sense of whole. All transcriptions were considered the unit of analysis. Also, words, phrases and sentences with similarity in contents were sorted together. The data analysis was continued with the aim of improving the abstraction level through coding. According to Graneheim and Lundman (2004), the codes were sorted in terms of similarities and differences and compared together that led to the development of themes as the latent contents of the text(23).

### 2.4. Validating Findings

The methods suggested by Guba and Lincoln was used for ensuring rigor(24). Dependability was confirmed using appropriate data collection and analysis and audit trail by experts in the field of the study. Dependability was also obtained through prolonged engagement with the study phenomenon and peer checking by the participants. Enjoying additional comments by university faculty members helped with confirm ability of the data. For the transferability of findings, a reach description of the data collection and analysis process was performed.

## 3. Results

Of 32 students in this study, the majority of them was female and in the age ranges of 22-26 years (Table 1). The data analysis led to the extraction of 820 primary codes that were sorted to three themes and twelve subthemes as follow: “The effective Inter-professional communication” with the sub-themes of ‘continuous scientific communication’, ‘interaction management’, ‘empathy/emotional support’ and ‘participatory decision making’; “dysfunctional professional communication” with the sub-themes of ‘limited values’, ‘marginalized communication’, ‘confusion in the work load’ and ‘destroyed preconceptions’; “the clear vision of the link between professions” with the sub-themes of ‘the enhanced perception of self’, ‘independence and competency’, ‘participatory learning’ and ‘holistic care of the patient’ (Table 2).

### 3.1. The Effective Inter-Professional Communication

The students believed that ‘continuous scientific communication’, ‘interaction management’, ‘empathy/emotional support’ and ‘participatory decision making’ were the components of effective Inter-professional communication.

### 3.2. Continuous Scientific Communication

An appropriate and scientific communication between the instructor and student, instructor and staff, and physicians and operating room staff was required for effective inter-professional communication. A female student stated: “Appropriate communication between the instructor and students help with the improvement of students’ learning.” Another female student stated the importance of communication between the instructor and staff as follows: “Anytime that there is good communication between the instructor and staff, staff collaborates in the education of nursing students and shares their experiences.” A male student described constructive learning with the collaboration of nurses in the operating room as follows: “If we have good communication with staff nurses, they teach us practical subtleties of their work.” Another important aspect was communication between the physician and staff nurses in the operating room: “In the operating room, all healthcare professionals communicate well together to achieve the best patient’s outcome. Such communication between the physician and operating room nurses is crucial.”

### 3.3. Interaction Management

From the students' perspectives, the management of relationships and interactions plays a constructive role in building inter-professional communication. A male student stated: "The management of relationship in the operating room is necessary, because otherwise, the time for patient care is wasted and the patient is ignored." A female student highlighted the need for a coordinator for the management of communication: "There is a need to a manager for the work progress. Since there are many healthcare staff in the operating room, a manager is required for achieving the best outcome."

### 3.4. Empathy/Emotional Support

The need for empathy and emotional support in the operating room was described by the students. It was required in the all stages of patient care until his/her transfer to the ward from the operating room. A female student said: "If you look at the patient, you can see that he/she feel stress. We can listen to his/her words when she is recovered to reduce her stress." Another student stated: In the operating room we feel that we are stranger, but when we are supported by the operating room nurses, we are motivated to learn and work."

### 3.5. Participatory Decision Making

Participative decision-making in the operating room was stated a strategy for developing effective professional communication. A male student said: "When the patient enters the operating room, each staff has some important information about the patient that is required for his/her recovery. If there is appropriate communication between healthcare professionals, appropriate decisions will be made." A female student said: "The work in the operating room is collaborative. Therefore, no one can work independently. The person needs to share his/her perspectives to reach the best outcomes."

### 3.6. Dysfunctional Professional Communication

From the students' perspectives, limited values, marginalized communication, confusion in the work load and destroyed preconceptions led to dysfunctional professional communication.

### 3.7. Limited Values

The students believed that the student's ignorance in some educational centers negatively affected their learning. A female student said: "Sometimes our communication shows that we have lost humanistic values and no one takes care about the other."

### 3.8. Marginalized Communication

A male student said: "Some operating room nurses communicate with students in such a manner that is disrespectful to students."

### 3.9. Confusion in the Work Load

A female student described her confusion due to the workload as follows: "Sometimes students are assigned various works. Therefore, students loss learning opportunities due to the workload." A male student said: "We are students and should have restricted work descriptions. We are unable to adopt with all tasks assigned to us by the operating room staff and the instructor."

### 3.10. Destroyed Preconceptions

A female with regard to destroyed preconceptions said: "When I decided to study and enter this profession, I was happy, because I reached my dreams. Now, I watch inter-professional communication in the operating room and am completely demotivated." A male student said: "My classmates and I entered

this profession with great hope for achievement and success, but current inter-professional communication demotivated us."

### 3.11. The Clear Vision of the Link between Professions

The students shared their perspectives regarding the enhanced perception of self, independence and competency, participatory learning and holistic care of the patient.

### 3.12. The Enhanced Perception of Self

A male student stated his comments regarding the positive impact of communication as follow: "When I feel that I have learnt new things and experience good inter-professional and the instructor-staff communication, my competencies are enhanced." A female student said: "Since my instructor and operating room staff helped me to learn specialized care, I feel competent."

### 3.13. Independence and Competency

A male student described his feelings of independence and competence as follow: "Sometimes students are hindered to practise what they have learnt. When students are given the permission to do what they know, they feel that they are independent and competent."

### 3.14. Participatory Learning

Participative learning in the operating room was highlighted by the students and described as learning from both the instructor and staff. A female student said: "The best learning outcome occurs when the instructor and also the operating room nurses are involved in teaching students."

The need for practical learning in the clinical setting was described by the students. A male student said: "The students needs to practise and collaborate with healthcare staff to improve their learning."

### 3.15. Holistic Care of the Patient

From the students' perspectives, the presence of constructive inter-professional communication in the operating room made the students hopeful to their future and holistic patient care. A female student said: "A patient in the operating room as a human being needs holistic care with physical and psychological needs. Appropriate communication between healthcare professionals is needed for providing holistic care and preventing the patient's ignorance. The aim of patient care is the provision of holistic care to the patient" A male student said: "There is a need to paying attention to holistic patient care for providing a bright future for operating room nurses. This depends on appropriate inter-professional communication between healthcare professionals. Such communication is required for paying attention to all patients needs not only his/her surgical care."

## 4. Discussion

This study reported the experiences of operating room nurses regarding inter-professional communication. The main themes developed in this study were "the effective inter-professional communication" and "dysfunctional professional communication" and "The clear vision of the link between professions"

### 4.1. The Effective Inter-Professional Communication

The students believed that 'continuous scientific communication', 'interaction management', 'empathy/emotional support' and 'participatory decision making' were the components of effective inter-professional communication. An appropriate and scientific communication between the instructor and student, instructor and staff, and physicians and operating room staff was required for effective inter-professional communication. Appropriate

communication between the instructor, students, operating room staff, physician and the patient led to the creation of a pleasant learning environment and experience in clinical practice(13). According to Khazaei et al. an effective instructor was characterized by being able to provide appropriate education and support to students(25).

Also, the students believed that appropriate communication between the instructor and staff and also between the students and staff improved their learning and work motivation. The results of other studies showed that staff-students communication affected students learning outcomes(17, 26).

In this study, appropriate learning was depending on appropriate communication between the physician and staff and the presence of empathy and emotional support. Other studies similarly stated that staff-physician communication was associated with the learning of communication principles and interest to the profession(27, 28).

Given new advancements in the field of healthcare, the provision of care depends on collaboration and cooperation between healthcare providers(29). Some studies showed a lack of appropriate staff-physician communication(30, 31). The results of a study by Cirta in 2008 showed that 70 percent of adverse events in various work shifts was due to weak communication between the physician and nurse(32). Therefore, communication can reduce the duration of hospitalization, treatment costs (33) and patients' conditions(34).

From the students' perspectives, the management of communication and interactions had effective roles in the development of effective inter-professional communication. Other studies described the necessity of the management of appropriate communication in the operating room(25, 35). Pressure and continuous difficulty and complexity of the operating room (36) and the management of communication are required collaboration in the group(37). Moreover, in the study of Azimi et al. the use of improper methods for the management of communication led to suspicion and despair in the workplace. Also, the art of management was considered an important aspect of communication(38).

Participative decision making in the operating room was important for effective inter-professional communication. Appropriate professional communication is characterized by mutual respect to professional values, personal abilities, the use of knowledge and experiences of colleagues for making decisions(33). Teamwork has been recognized as a solution to deal with the growing lack of staff, training costs, increasing the expectations of patients, reducing practice errors and negative consequences on the patient health(38). Inter-personal communication skills improve patient care and patient satisfaction and reduce practice errors(31).

#### 4.2. Dysfunctional Professional Communication

From the students' perspectives, limited values, marginalized communication, confusion in the work load and destroyed preconceptions led to dysfunctional professional communication. The students believed that the student's ignorance in some educational centers negatively affected their learning.

Khazaei et al. stated that all students experienced difficulties in the operating room that directly affected their clinical learning. In this respect, inadequate planning and a lack of proper implementation of roles hinder the achievement of the objectives of the educational system(25). Appropriate inter-professional collaboration is needed for the satisfaction of healthcare providers and patients(37).

Marginalized communication was described by the students as inappropriate between healthcare professionals in the operating room. They stated that communication was ignored in some situations. Some studies showed a lack of appropriate communication between the students, instructor, physicians and staff in the operating room (25)and clinical settings(17).

Some participants indicated that some operating room staff were self-directed in the process of communication. However, appropriate communication skills is crucial for collaboration with the aim of reaching the quality of care. An appropriate learning environment can be considered a suitable learning environment if communication and collaboration is available(39).

Some students described the workload and unclear work descriptions as hindrances to learning in the operating room. Khazaei et al. stated that appropriate educational and work rules are required for practice in the operating room(25).

Some participants stated that negative preconceptions in the operating room negatively affected their motivation to practice in the operating room. Similar studies confirm the gap between the ideal and real work condition in the operating room(25). A lack of attention to the dignity of every profession leads to negative attitudes toward the profession(40). On the other hand, self-confidence leads to appropriate professional communication(41).

#### 4.3. The Clear Vision of the Link between Professions

The students shared their perspectives regarding the enhanced perception of self, independence and competency, participatory learning and holistic care of the patient. Healthcare professionals can improve or hinder communication in healthcare settings(42).

Some students felt independence and competence through teamwork in clinical settings. Collaboration improves mutual respect, humanistic communication, and interest to the profession, motivation to patient care and commitment to the organization. Low collaboration in decision making leads to disrespecting personal values, lack of self-confidence, job dissatisfaction, hopelessness and a lack of motivation(43).

The students believed that teamwork and learning from staff and instructors were participative learning in the operating room. Some studies reported that appropriate communication between the instructor and student was the main cause for improving students' learning. It also helped the student to reduce the theory-practice gap through the instructor's guidance(17, 25).

Holistic care depended on the presence of inter-professional communication between healthcare professionals. Teamwork was an effective method for meeting patients' expectations(38). Mahmoudian et al. stated that the improvement of the quality of care was associated with inter-professional communication(31).

### 5. Conclusion

The findings of this study provided new insights regarding inter-professional communication in the operating room. According to the experiences of operating room students, providing optimal clinical conditions and enhancing cooperation and communication between healthcare professionals are required for improving the quality of care and protecting public health. Also, culture making and educational programs can help with the reduction of barriers to effective inter-professional communication and therefore, the improvement of the quality of care.

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#### Author contributions

Parand Pourghane was responsible for the study conception and design. Parand Pourghane performed the data collection. Parand Pourghane, Fazlollah Ahmadi and Mahmood Abedin Zadeh performed the data analysis. Parand Pourghane was responsible

for the drafting of the manuscript. Fazlollah Ahmadi made critical revisions to the paper for important intellectual content.

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## Conflict of interest

The researchers of the present study declare that no conflict of interest exists in the present study.

## References:

- [1] Sabzevari S, Soltani Arabshahi K, Shekarabi R, Koohpayehzadeh J. Nursing Students' Communication with Patients in Hospitals Affiliated to Kerman University of Medical Sciences. *Iranian Journal of Medical Education*. 2006;6(1):43-9.
- [2] Thomas E, Sexton J, Helmreich R. Discrepant attitudes about teamwork among critical care nurses and physicians. *Crit Care Med*. 2003;31(3):956-9.
- [3] Bridges D. Inter professional collaboration: three best practice models. *nter prof Edu*. 2011;16(6035).
- [4] Bailey L. Strategies for decreasing patient anxiety in the perioperative setting. *AORN J*. 2010;92(4):445-57.
- [5] Sterchi L. Perceptions that affect physician-nurse collaboration in the perioperative setting. *AORN J*. 2007;86(1):45-57.
- [6] Fostering Organizational Citizenship Behavior (OCB) Through Human Resources Empowerment (HRE).
- [7] Deneckere S, Euwema M, Van Herck P, Lodewijckx C, Panella M, Sermeus W, et al. Care pathways lead to better teamwork: results of a systematic review. *Soc Sci Med*. 2012;75(2):264-8.
- [8] Barrere C, Ellis P. Changing attitudes among nurses and physicians: a step toward collaboration. *J Healthc Qual*. 2002;24(3):9-15.
- [9] Van Niekerk L, Martin F. The impact of the nurse-physician professional relationship on nurses' experience of ethical dilemmas in effective pain management. *J Prof Nurs*. 2002;18(5):276-88.
- [10] Tyson P, Pongruengphant R. Five-year follow-up study of stress among nurses in public and private hospitals in Thailand. *Int J Nurs Studies*. 2004;41(3):247-54.
- [11] Saarikoski M, Kaila P, Lambrinou E, Pérez Cañaveras R, Tichelaar E, Tomietto M, et al. Students' experiences of cooperation with nurse teacher during their clinical placements: an empirical study in a Western European context. *Nurse Educ Pract*. 2013;13(2):78-82.
- [12] Maxson P. Enhancing Nurse and Physician Collaboration in Clinical Decision Making Through High-fidelity Interdisciplinary Simulation Training. *Mayo Clinic Proceedings* 2011;86(1):31-6.
- [13] 13. Mongwe R, Van der Wall D. Students Nurses experiences of the clinical field in the Limpopo province as learning Field: A Phenomenological study. PhD Thesis. University of South Africa. 2007.
- [14] Channel w. Helping students to learn in the clinical environment. *Nurs Times*. 2002;98(39):34-5.
- [15] Boork F, Vander V, Teunissen P, Denbrejen E. How undergraduate clinical learning climates differ: Amulti-method case study. *Med Educ*. 2008;42(10):1029-36.
- [16] Moattari M, Ramezani S. Nursing students perspective toward clinical learning environment. *Iranian Journal of Medical Education*. 2009;9(2):137-44[Persian].
- [17] Pourghane P. Nursing students' experiences of clinical teaching: A qualitative study. *Holist Nurs Midwifery*. 2013;23(2):16-26.
- [18] Alavi M, Abedi H. Nursing Students' Experiences and Perceptions of Effective Instructor in Clinical Education. 2008;7(2):325-34 [Persian].
- [19] Reynolds J, Carnwell R. The nurse-patient relationship in the post-anaesthetic care unit. *Nurs Stand*. 2009;24(15-17):40-6.
- [20] Nagpal K, Arora S, Vats A, Wong H, Sevdalis N, Vincent C, et al. Failures in communication and information transfer across the surgical care pathway: interview study. *BMJ QualSaf*. 2012;21(10):843-9.
- [21] McGrail K, Morse D, Glessner T, Gardner K. What is found there?: qualitative analysis of physician-nurse collaboration stories. *J Gen Intern Med*. 2009;24(2):198-204.
- [22] Corbin J, Strauss A. *Basic of Qualitative Research*. 3rd ed. Los Angeles: SAGE. 2008.
- [23] Graneheim UH, Lundman B. Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness. *Nurse Education Today*. 2004;24(2):105-12.
- [24] Strubert Speziale H, Alen J, Carpenter D. *Qualitative Research in Nursing*. 3rd Ed. Philadelphia: Williams & Wilkings. 2003.
- [25] Khazayi T, Hajiabadi M, Khazayi T. Clinical Education Environment Experiences of Operating Room Students. 2015;14(4):166-73.
- [26] Hosseini M, Pourqane P. The Role of Nurses in Cardiac Rehabilitation. *MEJDS*. 2013;2(2):37-44.
- [27] Dehghani H, Dehghani K, Fallahzadeh H. The Educational Problems of Clinical Field Training Based on Nursing Teachers and Last Year Nursing Students Viewpoints Iranian. *Journal of Medical Education*. 2005;5(1):24-33.
- [28] Dehghani H, Dehghani K, Fallahzadeh H. The Educational Problems of Clinical Field Training Based on Nursing Teachers and Last Year Nursing Students Viewpoints. *Journal of Hormozgan University of Medical Sciences*. 2009;12(4):249-53.
- [29] Busari Payami M, Ebrahimi H, Ahmadi F, Abedi H. Types and Major Causes of Conflicts Experienced by Nurses: A Qualitative Analysis. *ZUMS Journal*. 2009;16(65):61-76[Persian].
- [30] Asghari A, Kazemi T, Nasiri A. Social pathology of nursing and nursing views about own work environments in Birjand hospital. 2005;2((1 and 2)):45-50.
- [31] Mahmoodian F, Seyed Jafari S, Keshmiri M, Azimi A, Vosoughi M. Nurses' Experiences about the challenges of Nurse-Physician Professional Relationships, in 2010. *Sadra Med Sci J*. 2013;2(1):31-42[Persian].
- [32] Sirota T. Nursing2008 nurse/physician relationships survey report. *Nursing*. 2008;1(1):28-31.
- [33] Chaboyer W, Patterson E. Australian hospital generalist and critical care nurses perceptions of doctor-nurse collaboration. *Nursing and Health Science*. 2001:73-9.
- [34] Thempson D, Stewart S. Handmaiden or right handman: is the relationship between doctors and nurses still therapeutic. *International journal of Cardiology*. 2007:139-40.
- [35] 35. Kangas S, Kee C, McKee-Waddle R. Organizational factors, nurses' job satisfaction, and patient satisfaction with nursing care. *J Nurs Adm*. 1999;29(1):32-41.
- [36] Pennington M. Breaching the nurse -patient therapeutic relationship: A grounded theory study. [Thesis].Arizona, AZ: University of Arizona. 2002.
- [37] Hassankhani H, Zamanzadeh V, Jasemi M. Effective Factors on Inter Professional Relationship Between Nurses and Physicians. *International Journal of Basic Sciences & Applied Research*. 2013;2(1):45-9[Persian].
- [38] Azimi Lolaty H, Ashktorab T, Bagheri Nesami M, Bagherzadeh Ladari R. Experience of Professional Communication among Nurses Working in Educational Hospitals: A Phenomenological Study. *J Mazand Univ Med Sci* 2011;21(85):108-25[Persian].
- [39] Atack L, Comacu M, Kenny R, Labelle N, Miller D. student and staff relationships in a clinical practice model: impact on learning. *Nurs Educ*. 2000;35(q):387-92.
- [40] Valizadeh S, Abedi H, Zamanzadeh V, Fathiazar E. Challenges of Nursing Students during Their Study: A Qualitative Study. *Iranian Journal of Medical Education*. 2008;7(2):397-407.
- [41] MacIntosh J. Reworking professional nursing identity. *West J Nurs Res* 2003;25(6):725-41.
- [42] Farnia F, Abbaszadeh A, Borhani F. Barriers to Developing the Nurse-Patient Relationship in Operationroom: A Qualitative Content Analysis. *J Qual Res Health Sci*. 2013;2(1):76-90.
- [43] Zeighami Mohammadi S, Hagigi S. The association between nurses' communication skills and nurse-physician relationship and collaboration. *Journal of Urmia Nursing And Midwifery Faculty*. 2009;4:188-96[Persian].

**Table 1.:** Personal Characteristics of Participants

Number of Participants	Gender	Age, y	experience in operating rooms(Term)
1	Male	22	6
2	Female	23	4
3	Female	22	5
4	Male	22	5
5	Female	23	4
6	Female	23	5
7	Female	22	6
8	Male	24	4
9	Female	23	5
10	Female	22	5
11	Male	27	4
12	Female	22	6
13	Female	23	5
14	Male	22	4
15	Male	22	5
16	Female	25	6
17	Female	23	6
18	Female	22	5
19	Male	22	6
20	Female	22	6
21	Female	22	5
22	Female	26	5
23	Male	23	4
24	Female	22	6
25	Female	22	6
26	Female	23	5
27	Male	22	4
28	Female	22	6
29	Male	23	6
30	Female	22	6
31	Male	25	5
32	Female	22	4

**Table 2.:** Overview of the Themes, Subthemes and codes Constructed Based Inter-professional relationships from the perspective of operating room students

Main themes	Subthemes	Codes
The effective Inter-professional communication	continuous scientific communication	Ongoing scientific communication between the university and the healthcare setting Ongoing scientific communication between the instructor and staff Ongoing scientific communication between the instructor and student
	interaction management	Attention to planned interactions Clarifying personal individual tasks
	empathy/emotional support	Empathy in inter-professional communication Providing support in communication
	participatory decision making	Attention to the principle of participatory decision-making Importance of decision making in the group
Dysfunctional professional communication	limited values	Inadequate attention to students Inadequate attention to patient values
	marginalized communication	Forgotten principles of communication Egotism as the main strategy
	confusion in the work load	A lack of awareness of the scope of tasks Assigning several responsibilities at the same time
	destroyed preconceptions	Loss positive perspectives on the work A lack of interest to the presence in the clinical setting
The clear vision of the link between professions	the enhanced perception of self	Attention to the self-worth Knowledge about self-competence
	independence and competency	The ability to independence Awareness of their competence
	participatory learning	Learning by participating in the clinical setting Learning by ongoing inter-group communication
	holistic care of the patient	Attention to the patient's overall health Attention to the patient's health in the mind, body and spirit