

# Explaining the Residents' Perception of Desirable Clinical Education: A Qualitative Content Analysis

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**Abstract**

**Background:** Specialized and subspecialized medical education is of key importance in the higher education system due to the special role of residents in various fields in the educational-medical system of universities and the important role of graduates of these fields as specialized and subspecialized physicians in the community health system; therefore, the examination of their views on desirable education can lead to the improvement of the quality of education.

**Objectives:** The present study aimed to explain the views of residents of Kerman University of Medical Sciences, Kerman, Iran, on desirable education.

**Methods:** This study was performed using qualitative content analysis. A total of 17 participants were selected by purposive sampling in the academic year of 2019-2020 from the educational hospitals of Kerman University of Medical Sciences and interviewed in face-to-face and semi-structured manners. After collecting the data, all the interviews were implemented and reviewed, and categories were extracted.

**Results:** Data analysis led to the extraction of six main themes, including capable clinical professors, effective clinical environments, comprehensive planning, comprehensive and preventive educational rules and regulations, efforts to improve educational processes, and educational management.

**Conclusion:** Health promotion is one of the needs of today's society. Clinical education should be responsive to society, and the desirability of this education will lead to community health promotion. In this regard, it is suggested that education and health officials take an effective step toward improving residency course education by proper planning, performing continuous evaluations of the status of residency education, and considering the factors affecting the desirable clinical education.

**Keywords:** Residents, Content analysis, Clinical education, Qualitative study

## Background

Clinical education is a process in which students gain experience gradually with the presence of the patient and prepare their minds to solve the patient's problems using the acquired experiences and logical arguments (1). A clinical environment enables learning focused on real problems in a professional work environment. It is the only environment in which the skills of biography, physical examination, clinical reasoning, decision

making, empathy, and professional commitment are learned as integrated (2) and lead to creating the necessary opportunities for students to be able to bring theoretical information closer to practical facts (3). Additionally, it is considered the best place to learn medical knowledge where the student learns to care for the patient and is motivated for self-directed learning (4).

Specialized and subspecialized medical education is of key importance in the higher education system due to the

special role of residents in various fields in the educational-medical system of universities and the important role of graduates of these fields as specialized and subspecialized physicians in the community health system. Residency courses often include educational courses in medical centers where residents provide patients with care under the supervision of a clinical professor (5) and learn by participating in the treatment of patients in clinical settings (6).

In recent years, effective clinical education has been considered by numerous researchers in the fields of medical sciences (7). The existence of various problems, such as the unclear goals of clinical education, stressful hospital environments, less willingness of experienced trainers to be present in clinical environments, unrealistic evaluations, and shortage of welfare and educational facilities, are among the obstacles to the achievement of clinical education goals (8, 9). On the other hand, from the students' perspective, the quality of clinical education is not desirable, and factors, such as insufficient access to trainers, inadequate time required for dealing with different cases of the disease to fully practice what has been learned in the clinical environment, and stressful situations, are among clinical education problems (10). The improvement of the quality of clinical education leads to training capable and competent students in the clinical field (11). This quality improvement leads to effective clinical education and, ultimately, better learning (12) on the one hand, and providing appropriate and high-quality care services to patients on the other hand (13-15).

For the achievement of efficient clinical education, it is necessary to continuously evaluate the current state of education (1). Using learners' opinions for evaluation is one of the common and well-known methods (16) performed using various research approaches, including quantitative and qualitative methods. Recently, an approach to qualitative methods has emerged in deeply revealing the underlying factors affecting clinical education, and some studies have also been conducted in this regard (17-19). Abbaszade conducted a qualitative study aiming to assess the clinical trainers' perceptions of the challenges and strategies of clinical education and concluded that proper planning for effective education affected the process of acquiring clinical skills. In this regard, attracting and employing experienced clinical professors and making efforts to improve the educational environment can have significant effects (20).

In a qualitative study performed using the ethnographic method, Seabrook explained the professors' views on education in a clinical environment. The most important concerns of these individuals were the lack of a clear structure for education, insufficient time, space, and resources to facilitate education and learning, insufficient supervision of students, and lack of support and recognition of education (17). Another qualitative study conducted by Hoffman and Donaldson investigating the stresses of clinical environments and their effects on clinical education and learning showed that three stressors,

including the number of patients, time, and multiple and different roles of individuals, affected the medical team of clinical education (18).

Another qualitative study was conducted by Ramani et al. using the content analysis method to examine professors' views on barriers to clinical education and their strategies to improve it. Ramani et al. concluded that the main barriers to clinical education, including the low quality of professors' clinical skills and, therefore, the tendency to theoretically present educational materials, were the type of perception of these individuals of clinical education skills (19).

### Objectives

According to the reviews of the research team, residents believed that there were limited studies related to evaluating desirable clinical education. Considering the importance of the quality of education of residents on the one hand, and their effective role in patients' health on the other hand, the residency education system needs to conduct specialized research using quantitative and qualitative tools to achieve practical solutions to improve the quality of education. Therefore, the present study aimed to assess the residents' perception of desirable clinical education.

### Methods

This study was performed using qualitative content analysis. This method analyzes written, spoken, or visual messages and, as a research method, is a purposeful way to describe a phenomenon. This method allows the researcher to examine the desired topics to be further perceived. In qualitative content analysis, raw data are purified based on inference and interpretation and are placed within categories (21-22). In the present study, the participants were selected purposefully. Residents' sampling was performed with maximum diversity (e.g., gender, different fields, different incoming students, and different educational-medical centers) and continued until achieving data saturation. Sample selection criteria included studying residency course and declaring consent to participate in the study.

The data were collected using semi-structured interviews with residents in the academic year of 2019-2020 in the educational hospitals of Kerman University of Medical Sciences, Kerman, Iran, including Afzalipour, Shahid Bahonar, Shafa, and Shahid Beheshti educational-medical centers. Data collection continued until data saturation was achieved. In the present study, data saturation was obtained through interviewing 17 participants.

In the present study, the interview guide was used in five sections to collect the data. The interview guide is an essential tool to help the researcher extract facts, ideas, processes, and views of individuals (23). The interview questions focused on the current clinical education, clinical education problems, characteristics of a desirable clinical professor, characteristics of a desirable educational environment, and characteristics of a desirable educational

program. At the end of the questions, an open-ended question was raised so that the students could add any additional points, if they had, regarding the characteristics of desirable clinical education. Each interview lasted 20 to 60 minutes. The interviews were conducted within July-September 2019.

The collected data were analyzed by contractual qualitative content analysis. For this purpose, Graneheim and Lundman's method was used to analyze the data. Graneheim and Lundman have proposed five steps for analyzing qualitative data, including transcribing the whole interview immediately after each interview, review the whole transcript of the interview to gain a general understanding of its content, determining the semantic units and primary codes, classifying similar primary codes into more comprehensive categories, and determining the content hidden in the data (24).

The data were collected and analyzed simultaneously. Data analysis was performed manually. After each interview, the recorded audio files were implemented as text in Word software (version 2016), and the data were encoded before proceeding with the next interview. The data obtained from all the stages of coding interview transcripts were also managed in MAXQDA 2019 software. For further assurance, the audio file of the interview was matched with the Word file.

In the present study, the validity of the findings was assessed using Guba and Lincoln strategies (25). The data were analyzed using a review of the transcripts of the interviews by participants in the project and the project colleague. Additionally, the individuals experienced in qualitative research were asked to re-perform some parts of the coding process. The corrective opinions of the research team professors were used regarding the interview process, their analysis, and the extracted data. The transcripts of the interviews, extracted codes, and subcategories were shared with some participants and two nursing PhDs, and their opinions were used.

Consolidation in data collection method and field interviews and notes were used. Finally, diversity was considered in sample selection. Regarding the transferability criterion, the purposive selection method was used with maximum diversity. The credibility criterion was also met by regularly collecting data, constantly comparing them, accurately recording and writing, and observing the neutrality and agreement of analysts on categories. Moreover, the data reliability criterion was fulfilled by researchers' long engagement with and immersion in the data (21).

For the observation of ethical considerations, the possibility to access participants was initially provided by receiving a letter of introduction from the Center for the Study and Development of Medical Education of Kerman University of Medical Sciences. Written consent was obtained from those who were inclined to participate in the study. In addition, written information was provided to the participants regarding the study and its objectives and questions. In the present study, all the information,

including names, interview files, and transcripts, remained confidential. Moreover, a code was used instead of mentioning the participants' personal information.

According to the information in the informed form informed consent form, the participants had the right to withdraw leaving from the study at any stage, but is not required to provide their reason. there was no need to provide a reason for their withdrawal; however, none of the participants left the study. All the subjects were informed of the study aims, and the interviews were recorded with their consent. The participants were also assured that the recorded information would remain confidential, the audio file would be removed after implementation, and that if they wished, and they could receive the audio file of the interview from the researcher and be informed of the overall results.

## Results

Of 17 Residents participating in the present study, 9 and 8 participants were female and male, respectively. The subjects' age was within the range of 28-39 years. Furthermore, the subjects' education level ranged from the first to the fourth year of specialized fields, including radiology, obstetrics and gynecology, resident al medicine, pediatrician, cardiovascular, dermatology, surgery, and anesthesia. Moreover, 12 participants were married, and the other participants were single.

First, in the data reduction phase, the author began to determine the semantic units and extract the codes. Out of 388 semantic extracted units, 168 codes were obtained. Then, from the data-rich and in-depth descriptions, six categories were extracted, including capable clinical professors, effective clinical environments, comprehensive planning, educational management, comprehensive and preventive educational rules and regulations, and efforts to improve educational processes (Table 1).

### Capable Clinical Professors

According to the participants' views, the capability of professors is one of the most important categories in desirable clinical education because they carry the main burden of education. In this regard, several statements pointed to this issue such as:

"Professors should be proficient in up-to-date sciences and share their experiences with resident s. Professors should be updated and proficient in science and pay attention to the rules, not relationships." (Participant 3)

"For the improvement of the education system, it might be better to use professors who are ranked in the specialized board." (Participant 1)

### Effective Clinical Environments

According to the findings of the present study, in addition to the capability of professors, space and clinical environment are also effective in the desirability of residency course education. Devoting adequate facilities to residency education in accordance with the science of the day can be very effective.

**Table 1.** Main Categories and Subcategories of Desirable Clinical Education from the Perspective of Residents

Main categories	Subcategories
<b>Capable clinical professors</b>	Employing full-time faculty members (without the office) Employing capable faculty members in medical education Employing responsible faculty members Employing elite faculty members Employing faculty members based on legal criteria and not existing relationships Empowering faculty members to use up-to-date knowledge Paying attention to the professor's academic level when hiring Increasing the work motivation of faculty members using economic resources Presence of faculty members in residents' night shifts Regular and active presence of faculty members in educational hospitals Effective and regular presence of faculty members in mornings and educational rounds Employing faculty members according to the number of residents in educational departments Professional and logical behaviors of faculty members with residents in education, especially while occurring errors Not delegating managerial duties to clinical faculty members Prioritizing the residents' education by faculty members
<b>Effective clinical environments</b>	Providing facilities and equipment required for educational groups based on up-to-date technology Utilizing new educational technologies by faculty members Utilizing educational facilities and equipment in suitable places Residents' education in using educational facilities and equipment Utilizing educational facilities and equipment tailored to the needs of residents Allocating suitable rooms for educational classes and pavilions in the wards Utilizing the latest edition of educational resources and references Providing educational resources and references in print and electronically by the libraries of educational hospitals Providing online access to reliable electronic medical resources Increasing welfare facilities specific for educational residents
<b>Comprehensive planning</b>	Distribution of educational guides (i.e., the introduction of field and university) upon students' arrival Development of residents' educational goals and programs by professors and notification to students Development of the educational program for residents considering educational logbooks Development of the educational program along with the operational plan and schedule (i.e., annual, monthly, weekly, and daily) Development of a program for residents' being on-call along with professors
<b>Educational management</b>	Delegating the necessary authority to residents to adjust their responsibilities and duties using a hierarchical system in residency education and patient treatment Futurism in residency education Reviewing the process and objectives of residents' education in accordance with the world's up-to-date resources at the appropriate time Adapting the educational programs with the world's top universities Adjusting the number of patients to be visited by the resident Determining residents' description of duties and responsibilities Time separation of residents' educational and medical activities Considering a light work schedule at the end of the residency course Considering a six-month theory course at the beginning of the residency course Upper-order supervision over the way of educating residency in medical universities Supervision of the officials of universities of medical sciences for the presence of professors in educational hospitals Providing educational programs to residents upon their arrival
<b>Comprehensive and preventive educational rules and regulations</b>	Improving the quality of educational rounds based on the developed bylaws and instructions Selecting the topics of rounds by educational residents Professional and logical behaviors of professors in educational rounds Holding rounds for educational purposes and not therapeutic purposes Management of educational rounds by professors Holding regular morning reports Holding morning reports based on the existing bylaws and instructions Improving the educational quality of morning reports Management of morning reports by professors Assuring the professors of raising real cases by residents Establishing specialized educational clinics
<b>Efforts to improve educational processes</b>	Holding theory classes in educating some materials according to the needs of the educational department Appropriate and operational planning in holding theory classes Holding theory classes before practical education according to the needs of the educational department Using appropriate evaluation methods in clinical education Educating residents according to the educational goals of educational programs Prioritizing residents' education and considering treatment to be the next priority Lack of education higher than the scientific level of residents Allocating enough time to residents' education Using residents as hospital teachers to teach lower-level students Prioritizing professors to residents' practical and specialized education Emphasizing evidence-based education in residency education

The participants also pointed to this issue with several comments such as:

“We have good educational facilities; it is not a matter

of facilities; however, our main problem is the proper use of educational facilities in hospitals. Some experienced professors do not know how to use these facilities properly

or do not care about it at all and continue their traditional training.” (Participant 11)

“In terms of the education system, I think we are stagnating. I respect professors; however, here, the education using educational facilities is their last priority.” (Participant 17)

### Comprehensive Planning

Comprehensive planning refers to the existence of a pre-defined program in residency education. This general issue was also considered in the present study by the participants.

“There should be a written plan for each year of residency. For example, what a first-year resident needs to learn should be clear. Each year, there should be a specific educational protocol.” (Participant 7)

“There should be a program for residents so that the resident is primarily targeted. They should state what kind of resident they want to train ... medical or educational? Then, they tell us what our resident is now and what is not. Afterward, they should plan for education according to the facts and looking to the future.” (Participant 9).

### Educational Management

In this area, the participants mentioned that the issue of residency education in the educational policy-making of the Ministry of Health, special attention in the form of adjusting residents’ duties and responsibilities, continuous reviewing of educational programs based on the science of the day, and developing more regulatory mechanisms in residency course education should be considered.

“I wish the curricula of our field would be updated and proposed based on the curricula of the world’s top universities.” (Participant 5)

“The supervision of university officials over the residency course is very low; everything is up to the professors and departments ... Sometimes we need an upper-order individual to oversee the way we are educated and how we are treated.” (Participant 16).

### Comprehensive and Preventive Educational Rules and Regulations

According to the participants in the present study, educational rules and regulations should be considered equally for all educational groups. The rules related to education and evaluation should be applied uniformly and appropriately to all groups.

For example: “In my opinion, these frameworks (i.e., responsibilities) should not be written by a group of first-year, second-year, third-year, or fourth-year residents, graduates, resident s, staggers, and professors but to be written and collected by an impartial individual...; unfortunately, we see a new rule every day.” (Participant 11)

“We have some rules for educating the residency course not being imposed in groups, and everyone looks at them and applies them as they like. Adherence to educational rules is low in some cases.” (Participant 12)

“I do not know if it is the same in all universities ... Why is it not clear how much we have to be on-call? Why do we have to work such long hours? To God, we hurt both ourselves and the patient ... Sometimes we can no longer work properly.” (Participant 13).

### Efforts to Improve Educational Processes

One of the most important educational contexts in the residency course is the use of morning reports, clinical rounds, and grand rounds, which should be effectively planned and implemented. The theory classes of the residency course should be held before the practical classes in the wards, and the evaluation process in the wards should be planned in a written and specific way.

“In many morning reports and rounds, there is no proper and professional treatment and behavior. Professors treat us far from the scientific and up-to-date routines of the world.” (Participant 10)

“Of course, education has greatly diminished ... If we have a chance and there is a hospitalized case, we will be able to learn something, and on the other hand we are responsible for educating another group. It would be better if these procedures were corrected.” (Participant 8).

### Discussion

Regarding the opinions of residents regarding the desirable clinical education, the role of professors was emphasized. In this regard, clinical professors should first be proud of their profession and increase their knowledge in their field and their theoretical and practical knowledge regarding new teaching methods. An influential clinical professor should have a clear perception of the components of the residents’ educational program. Residents should also consider the professor-student relationship in their communication. They should also seek information and understand the standards of the medical profession and what is expected of them. Those involved in education should consider that they are responsible for the efficiency of a clinical team and should play a guiding role in the progress of the medical team (26).

The results of the present study showed different dimensions regarding desirable education from the perspective of residents. “Capable clinical professors” was one of the most important issues raised by residents for desirable education. This issue was raised by all the participants so that they considered this issue more important than other issues and suggested the important role of faculty members as an integral part of desirable education. This finding was consistent with the results of Shaterjalali et al.’s study, declaring based on Delphi’s study that the teacher and the quality of his/her performance was the most important component in promoting clinical education (27).

In another study, Esteghamati et al. suggested the hidden curriculum as the most important component of education from the residents’ perspective; nevertheless, in this curriculum, the role and performance of a capable clinical professor are prominent in various educational

aspects (28). Some of the most important cases raised by students on this issue are employing full-time faculty members who are literally always available, employing faculty members in proportion to the number of residents in educational departments, professional and logical behaviors of faculty members with residents in education, especially while occurring errors, and not delegating managerial duties to clinical faculty members.

Numerous studies have confirmed the findings of the present study and expressed the characteristics of a capable clinical professor. In Adhami et al.'s study conducted based on the opinions of the residents of medical specialty at Kerman University of Medical Sciences, the highest scores among the studied domains were assigned to the practical skills and ethics of clinical professors, and the lowest score was allocated to teaching methods (i.e., theoretical and practical). Although professors' practical skills are at a high level from the residents' point of view, the teaching methods of clinical education are at the lowest level. In addition, among the options available in the area of teaching methods, the use of different teaching methods (e.g., group work and problem-solving methods) gained the lowest score (29).

The results of Abedini et al.'s study showed eloquence, receptivity and kindness, and mastery of the subject as the most important characteristics of a good academic professor. Receptivity and kindness for a teacher mean accepting the learner with emotion, intimacy, and good intentions and creating an open environment, along with sincere and complete cooperation in the heart of the class, leading to providing the initiative for learners according to their ability and capacity and showing them the means and ways of progress (30).

In another study, mastery of the curriculum materials was mentioned as an expected criterion (30), which is consistent with some results of the present study emphasizing the empowerment of faculty members in utilizing the up-to-date knowledge and considering the academic level of a professor when hiring. This finding means that a faculty member should have complete mastery and expertise in the materials he/she teaches. Other criteria include regular and active participation in educational programs, seriousness, interest, commitment to education and teaching, and monitoring the proper performance of the student's practical tasks (31). In Navabi et al.'s study, the criteria of a capable teacher included eloquence, mastery of the subject of teaching, appropriate accent and voice, timely attendance at the classroom, and use of teaching aids at the right time in the right way (32).

In line with the results of Boor et al.'s study (33), the characteristics of a capable professor based on the perception of residents were specified in four general categories. The first category involved personal characteristics, including commitment, supportiveness, honesty and rectitude, credibility, high receptivity of criticism and ideas of others, and his/her charismatic personality. The second category was related to professors' proficiency, including characteristics, such as expertise,

being a role model, and having up-to-date knowledge. The third category included specifications, such as teaching methods and tutorship. In the third category, the teacher should be able to distinguish between his/her medical role and teacher role and facilitate education. The last category involved professors' supervisory roles, such as being approach-oriented, performing various activities in addition to medicine, including research, and as a coach alongside the students, not as a person who humiliates them (33).

Another finding of the present study was an effective clinical environment as one of the features of desirable education. The implementation of educational processes in a standard and appropriate manner is one of the most important issues, according to the professional residents' views with a special role and importance in desirable education. The implementation of morning reports, educational rounds, and educational grand rounds according to the existing standards can play an effective role in improving residents' specialized education. These findings are consistent with the results of van Vendeloo et al.'s study; according to the opinions of the studied residents in the aforementioned study, the learning environment is a determinant in professional activity and learning (34).

Since these skills are effective and teachable, instructors can help students progress by teaching these skills and, as facilitators, play a prominent role in empowering learners in effective and efficient learning (35). From the perspective of residents, comprehensive planning is to perform precise and executive planning before implementing any educational program and being able to provide them with a specific path and reduce their confusion and worries. This is another important aspect raised in desirable and effective education. Some plans include the distribution of educational guides (i.e., the introduction of the field and university) upon students' arrival, development of residents' educational goals and programs by professors and notification to students, and development of the educational program, along with the operational plan and schedule (i.e., annual, monthly, weekly, and daily).

As the evidence shows, the foundation of education is educational planning (36). Effective educational management and leading an effective educational program require correct and appropriate management. Given the importance of residents' education to promote community health, effective educational management can play a critical role in improving the shortcomings of educational programs. The importance of this issue is evident in expressing the views of residents on desirable education.

Another result of the present study included comprehensive and preventive educational rules and regulations, which are of great importance. Education is the creation of an environment in which employees can learn behaviors, information, skills, abilities, and tendencies related to their occupation. The implementation of educational programs based on the framework of

educational rules and regulations leads to increasing the quality of education in the residency course. Furthermore, the adherence to rules and regulations during education results in the stability and uniformity of such educational programs, including updating the set of educational rules and regulations for residents, not frequently changing the approved rules and regulations, notifying the educational rules and regulations to the residents upon arrival, and following the educational rules and regulations in dealing with delinquent students. The results of this part of the study confirm the findings of Bigzadeh et al.'s systematic review on examining the challenges of clinical education in Iran. Bigzadeh et al. pointed out the managerial challenges and the lack of a comprehensive educational program in Iranian clinical education (37).

In another part of the findings of the present study, the dimension of "efforts to improve educational processes" was mentioned. For example, the regular and active presence of faculty members in educational hospitals and the effective and regular presence of faculty members in the mornings and educational rounds lead to promoting residency education and using educational facilities and equipment appropriately. From the perspective of residents, not only the provision of these facilities is important, but also the correct and optimal use of them can play an effective role in the improvement of residency educational processes.

### Conclusion

The results of the present study can help find ways to increase the awareness of clinical professors regarding the importance of their work to achieve high-quality residency education. On the other hand, it is suggested to examine the views of clinical professors on desirable clinical education so that they can illuminate the path, and awareness is achieved from their desires and expectations to create a desirable clinical environment. In addition to strengthening the quality of patient care services, promoting the educational quality of residency courses will lead to the improvement of the educational quality of medical students in the residency courses, and ultimately, result in the graduation of capable and expert physicians.

### Strengths and Limitations

One of the strengths of this study is the expression of demands and mental ideals of residents for effective clinical education and, finally, the provision of effective health services. The unwillingness of residents to participate in the project is the limitations of the current study.

**Supplementary Material(s):** is available here [To read supplementary materials, please refer to the journal website and open [PDF/HTML](#)].

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