

**The perspective of medical students regarding the roles and characteristics of a clinical role model**

Bahareh Bahmanbijari<sup>1</sup>, Amin Beigzadeh<sup>2</sup>, Abbas Etminan<sup>3</sup>, Atena Rahmati Najarkolai<sup>4</sup>, Marzieh Khodaei<sup>5</sup>, Seyed Mostafa Seyed Askari<sup>6</sup>

<sup>1</sup> MD., Pediatrician, Associate Professor, Department of Pediatrics, Kerman University of Medical Sciences, Kerman, Iran

<sup>2</sup> Ph.D. Candidate of Medical Education, Health Services Management Research Center, Institute for Futures Studies in Health, Kerman University of Medical Sciences, Kerman, Iran

<sup>3</sup> MD., Nephrologist, Assistant Professor, Department of Nephrology, Kerman University of Medical Sciences, Kerman, Iran

<sup>4</sup> M.Sc. of Medical Education, Education Development Office, Firoozgar Hospital, Iran University of Medical Sciences, Tehran, Iran

<sup>5</sup> M.Sc. of Health Services Management, Health Services Management Research Center, Institute for Futures Studies in Health, Kerman University of Medical Sciences, Kerman, Iran

<sup>6</sup> B.Sc. of Health Services Management, Shafa Clinical Research Committee, Kerman University of Medical Sciences, Kerman, Iran

**Type of article:** Original

**Abstract**

**Background:** As medical students spend most of their time with their clinical teachers and imitate their roles and characteristics during the school year, it is important to identify the roles and characteristics that they find essential in their role models. These traits play a part in their future professions as doctors.

**Objective:** The aim of this study was to determine the perspective of students, interns, and residents regarding the roles and characteristics of a clinical role model.

**Methods:** In an analytical cross-sectional study, a structured and self-developed questionnaire was completed by 185 medical students at educational hospitals of Kerman University of Medical Sciences during April and May 2015. Participants were selected using convenience sampling method. For data analysis, we used descriptive and inferential statistics. SPSS software version 16 was used as needed.

**Results:** In total, 90 medical students (48.7%), 65 interns (35.1%), and 30 residents (16.2%) participated in this study. Male respondents (n=75) comprised 40.5% and female respondents (n=110) 59.5% of the study sample. The three most important roles of a clinical teacher were organizer role (99.7), teacher role (101.7), and supporter role (109.5) for students, interns, and residents respectively. On the other hand, supporter role (85.4), communicator role (86.4) and organizer role (83.4) were ranked as the least important for students, interns, and residents respectively. There was no significant association among the three batches and the roles of a clinical teacher ( $p>0.05$ ). Conversely, Females rated the roles of a clinical teacher significantly higher than males ( $p<0.05$ ).

**Conclusions:** As teachers are frequently perceived by students as role models in medical schools, great attention should be given to their roles. Teachers must be aware that their roles have an impact on students' professional development and performance.

**Keywords:** Clinical role model, Student, Medical education

**Corresponding author:**

Seyed Mostafa Seyed Askari, Shafa Clinical Research Committee, Kerman University of Medical Sciences, Kerman, Iran. Tel: +98.3431217315, Fax: +98.3431217315, Email: [mmaskari142@yahoo.com](mailto:mmaskari142@yahoo.com)

Received: October 17, 2016, Accepted: March 08, 2017, Published: April 2017

iThenticate screening: February 25, 2017, English editing: March 19, 2017, Quality control: March 26, 2017

© 2017 The Authors. This is an open access article under the terms of the Creative Commons Attribution-NonCommercial-NoDerivs License, which permits use and distribution in any medium, provided the original work is properly cited, the use is non-commercial and no modifications or adaptations are made.

## 1. Introduction

A substantial proportion of the training of future doctors is dedicated to teaching, learning and experience in clinical environments (1). In this run, clinical teachers have a critical role as medical students develop their professional competencies and acquire a lot of professional and ethical values by watching their teachers practicing medicine (2). These values are essential as they play a part in students' future professions as doctors. Medical students learn through observing their teachers' actions in handling difficult and stressful situations and when treating patients. Role models are those who have specific qualities that we want to have or are in a position that we desire to be in (3). Role models are considered as an example to be followed and emulated for their manner and professional qualities (2). As role modeling is an inseparable part in medical education, the focus on desirable qualities of role models help us to teach the values and behaviors which are essential to medical students. Since; good role models facilitate the learning process and foster a good career as a doctor; it is important to identify the professional characteristics of these models (3). Faculty members and experts especially those involved in the clinical training of interns and residents and considered as role models, have a major role to prepare medical students to form their character, behavior and professional values (4). A shift from a medical student to a good doctor requires creative and committed role models. The present literature indicates that exposure to role models not only facilitates knowledge acquisition and development of professional skills, but also directs the medical student's decision to pursue a career in that same specialty (5). Evidence shows that medical students gain specific roles from their teachers, such as "physician role", "supervisor role", "teacher role" and "person role" (6), so it is of utmost importance to explore these teacher attributes. In a study by Elzubeir and Rizk regarding the identification of the characteristics that students, interns, and residents looked for in their role models, findings showed that interns and residents valued teaching enthusiasm and competence significantly more than students. The study showed that role models had a strong influence on the specialty choice of 53 (55%) respondents (7). In a study conducted among all bachelor degree students of health services management in Iran regarding the characteristics of a capable university lecturer, findings showed that personal characteristics and professional commitments were 2 distinct categories identified by students as important traits for a lecturer in health-related fields (8). In a study by Esmaeili et al. regarding the personal and scientific characteristics of positive and negative role models, findings identified 2 positive and 3 negative characteristics for role models. These were classified into ethical behavior and communication, educational and managerial skills, and scientific competencies (9). Identifying the characteristics and roles of clinician role models are of sheer importance as they are a powerful force in the learning process of medical students and a noteworthy component of medical education. As there is little known about the roles and characteristics of a clinical role model from the perspectives of students, interns, and residents in an Iranian context, we decided to conduct the present study to examine the perspective of these three groups regarding the roles and characteristics of a clinical teacher. Hence, the purposes of this study were: 1) to identify which roles and characteristics of a clinical teacher were the most important from the perspective of students, interns, and residents, and 2) to determine the association between the roles of a clinical teacher among female and male respondents.

## 2. Material and Methods

This cross-sectional analytical survey-based study was conducted at Kerman University of Medical Sciences in 2015. This study was designed to identify the most important roles and characteristics of a clinical teacher from the perspective of students, interns, and residents. We used a self-developed questionnaire to collect data. In this regard, one of the researchers was responsible for referring to educational hospitals of Kerman University of Medical Sciences to distribute the questionnaires during April and May 2015. The conceptual framework that guided the development of the questionnaire was the CanMEDS 2000. CanMEDS 2000 has described generic competencies that are common to all specialists, and sets directions for postgraduate medical education and clinical teaching (10). In addition, we completed the questionnaire items by doing a comprehensive literature review. The 50-item self-administered questionnaire which was developed specifically for the study was completed by 185 medical students. This population included medical students, interns and residents who had started their clinical rotation. In this regard, 90 medical students, 65 interns, and 30 residents entered the study based on convenience sampling. The inclusion criteria included a) willingness of participants to take part in the study, b) spending time in clinical rotations. Lack of consent to engage in the study was considered as the exclusion criteria. This structured and validated questionnaire was applied to measure the roles and characteristics of a clinical teacher. The questionnaire included two sections. The first section addressed the respondents' demographics (e.g., age, gender and educational level). The second section contained the roles and characteristics of a clinical teacher that participants might use to describe excellent role models, grouped under nine general headings. These roles were as physician (5 characteristics), teacher (6 characteristics), supervisor (5 characteristics), organizer (4 characteristics), supporter (7 characteristics), facilitator (5 characteristics), communicator (5 characteristics), evaluator (7 characteristics), and

morality (6 characteristics). Respondents were asked to answer the demographic questions and then they were asked to rate the characteristics on a five-point scale ranging from 1 to 5 (1= not important, 5= very important). In general, each questionnaire could obtain the least amount of score as 50 and the highest as 250 which indicates the importance of characteristics and roles identified by each respondent. For the validity purposes (face, content, and construct), we incorporated the feedback from experts in the field of medical education. For this purpose, we sent the questionnaire to 4 experts and the questionnaire was phrased appropriately to assure clarity. The Cronbach's alpha coefficient was applied for reliability purposes and pre-tested with a sample of 20 medical students over a 14-day period ( $\alpha=0.81$ ). In order to gather accurate data, the researcher responsible for distributing the questionnaires informed students about the purpose of the study and tackled the problem of ambiguity when students answered the questions. All the questionnaires were completed anonymously at an appropriate time and the confidentiality of information was guaranteed. Participation in the study was voluntary. For data analysis, we used SPSS software version 16. In order to analyze data, descriptive tests such as frequency, mean, and standard deviation were performed. The non-parametric Kruskal Wallis test was used to compare the mean of the three cohorts with the roles of a clinical teacher. The Mann-Whitney U-test was used to identify differences between male and female respondents. A p-value less than 0.05, was considered significant. This research was approved by the ethics committee of Kerman University of Medical Sciences.

### 3. Results

The study population was subdivided into three groups: (1) 90 medical students (48.7%); (2) 65 interns (35.1%); and (3) 30 residents (16.2%). Most of the participants were female at a rate of 58.9%, 61.5%, and 56.7% for students, interns, and residents respectively. Male respondents (n=75) comprised 40.5% of the study sample. In terms of age, the mean age of students was  $22.5\pm 2.0$ , interns  $25.5\pm 1.2$ , and residents  $28.8\pm 1.9$ . Table 1 gives an overview of the numbers of participants and their demographics. Respondents rated characteristics on a five-point scale. For each characteristic, a mean score was calculated. The two most important and the two least important characteristics are shown in table 2. As can be seen from table 2, having an educational content (M=100.0), supporting students (M=102.7), and assessing students' needs (M=115.0) were the most desired characteristics for students, interns, and residents. On the other hand, the lowest mean averages were for providing a good environment for learning (M=84.6), assessing students' needs (M=81.3), and supporting students (M=71.7) for students, interns, and residents respectively. Results also showed that the roles of organizer, teacher, and supporter were ranked as the top three factors for students, interns, and residents at 99.7, 101.7, and 109.5 respectively. Whereas supporter role (85.4), communicator role (86.4), and organizer role (83.4) were the least important for students, interns, and residents respectively (Table 3). We could not observe any significant differences among the three batches of participants and the roles of a clinical teacher ( $p>0.05$ ). When mean responses of men and women were compared, significant differences were observed (Table 4). Women rated seven out of nine roles of a clinical teacher significantly higher than men ( $p<0.05$ ). These included physician, supervisor, organizer, supporter, facilitator, communicator, and morality roles. Men, however, valued teacher role and evaluator role significantly more than women.

**Table1.** Demographic attributes of students participated in the study

Variable		Number (%); Mean $\pm$ SD	
Participants		Students	90 (48.7)
		Interns	65 (35.1)
		Residents	30 (16.2)
Gender	Female	Students	53 (58.9)
		Interns	40 (61.5)
		Residents	17 (56.7)
	Male	Students	37 (41.1)
		Interns	25 (38.5)
		Residents	13 (43.3)
Age (year)		Students	$22.5\pm 2.0$
		Interns	$25.5\pm 1.2$
		Residents	$28.8\pm 1.9$

**Table 2.** Mean responses of students, interns, and residents regarding the two most important and the two least important characteristics of a clinical role model

Variables			Mean
Two most important characteristics	Students	Educational content	100.0
		Interpersonal and communication skills	98.3
		Ethical and legal responsibilities	98.3
	Interns	Supports students	102.7
		Knowledgeable	102.6
	Residents	Assesses students' needs	115.0
Effective therapeutic skills		113.8	
Two least important characteristics	Students	Provides a good environment for learning	84.6
		Uses audio visual equipment	85.7
	Interns	Assesses students' needs	81.3
		Accept his mistakes	82.0
	Residents	Supports students	71.7
		Pay attention to students' needs	81.3

**Table 3.** Mean responses of the roles of a clinical teacher among the three groups of students, interns, and residents

Roles	Ranking average			p-value
	Students	Interns	Residents	
Physician	93.0	87.1	105.8	0.22
Teacher	88.2	101.7	88.42	0.23
Supervisor	88.5	92.4	107.5	0.23
Organizer	99.7	88.1	83.4	0.17
Supporter	85.4	95.8	109.5	0.07
Facilitator	87.2	97.5	100.2	0.33
Communicator	98.0	86.4	92.0	0.438
Evaluator	91.3	94.4	94.7	0.90
Morality	87.0	99.0	98.0	0.19
Total	822.6	838.0	853.0	0.63

**Table 4.** Mean responses of men and women regarding the roles of a clinical teacher

Roles	Ranking average		p-value
	Female	Male	
Physician	124.9	71.2	0.001
Teacher	81.1	101.1	0.008
Supervisor	131.6	66.6	0.001
Organizer	103.6	86.1	0.02
Supporter	118.4	75.6	0.001
Facilitator	118.6	75.5	0.001
Communicator	116.6	76.8	0.001
Evaluator	90.6	94.6	0.57
Morality	101.4	87.3	0.03
Total	899.6	787.6	0.001

#### 4. Discussion

Role models play a determining role in the learning process of medical students, and are considered as an inseparable component in medical education. Exposing medical students to excellent role models not only enhances better learning and influences students' career paths (7,11) but also facilitates the acquisition of proper humanistic and ethical attitudes (12). As there is scant research on role modeling in an Iranian setting, this study presents empirical evidence regarding the identification of the roles and characteristics of a clinical role model perceived by three batches of students, interns, and residents in our context. Based on our results, the two most important characteristics of a clinician role model as recognized and ranked by students were educational content, interpersonal and communication skills, and ethical and legal responsibilities, whereas characteristics related to

supporting students and being knowledgeable were ranked as the most important attributes for interns. Residents considered students' needs and effective therapeutic skills as the most important. Yazigi et al. found characteristics related to medical expertise as relevant medical knowledge, and sound clinical reasoning as the most important which were recognized and ranked from the viewpoint of interns and by junior and senior residents in the eastern Arabic country of Lebanon. (12). These findings are not consistent with the results of our study. In a study which was conducted on dentistry and pharmacy students regarding the characteristics of role models, findings showed that characteristics such as being respectful to colleagues, knowledgeable, and teaching competencies were rated as the most important traits (9). By the same token, in a study at McGill University examining what residents look for in their role models, aggregate responses of 230 residents in various specialty programs showed that clinical skills, personality, and teaching ability were ranked the three most important factors in selecting a role model (13). This shows that as medical students acquire most of the professional qualities from their teachers within the formal curriculum and in everyday practice, clinical teachers should be equipped with an expertise in transferring medical knowledge as well as those personality traits which students have a desire for. Based on our results, we conclude that medical teachers should be vigilant of their professional behavior as students expect punctual and responsible role models who establish rapport and pay attention to their legal responsibilities. After the early years of attending medical school and as students develop into interns, they look for teachers who are knowledgeable and they seek support from them. It is not surprising, as residents have a tendency towards role models who care about their needs and have effective therapeutic skills as they need role models to imitate them in providing care and services to the community. These findings imply that medical students have a tendency towards accepting responsibility which can be attributed to the nature of their future profession. In this case, medical schools and teachers have a share in teaching medical students to be socially responsible (14). By contrast, providing a good learning environment, assessing students' needs, and supporting students were regarded as the three least important characteristics from the perspective of students, interns, and residents respectively. Beigzadeh et al. in a study which was conducted in 9 Medical Universities at national level in Iran found that characteristics such as calling the roll, taking midterm quizzes, and teachers' harshness were rated as the least important traits (8). In addition, in another study, characteristics related to research, management skills and professional reputation were ranked as less important for clinical role models identified by interns and residents during internship and residency (12). These findings are not consistent with the results obtained in our study. Our data also showed that for students, organizer role, communicator role, and physician role were ranked as the top three factors whereas teacher role, morality role, and facilitator role were considered as the three most important factors for interns. For residents, supporter role, supervisor role, and physician role were rated as the most important. Different studies have resulted in identifying varying numbers of roles for a clinical teacher perceived by students. These were physician, supervisor, teacher, and person (6). Our findings are also in line with the clinical teacher roles suggested by Simon: resource, supervisor, designer of instruction, and role model (15); and by Irby: clinical supervisor and instructional leadership (16). The differences among the roles identified by the three batches in our study can be related to the fact that the nature of clinical role models' contributions to students' learning changes with the professional development of students. Thus, they at different levels perceive the clinical teacher roles differently. In a similar vein, Williamson et al. in an observational study, found decreasing consultation rates and duration from first to third year, and increasing clinical independence and assertiveness (17). We suggest that these roles, identified based on different studies, should be inculcated into all levels of medical education. Our results didn't show a statistically significant correlation between the three cohorts and the roles of a clinical teacher. But we could observe a significant difference among males and females and the roles of a clinical teacher. This finding is in congruence with a study conducted by Elzubeir and Rizk in which female respondents rated nine characteristics of a clinical role model significantly higher than males (7). The higher total score gained for females in comparison to males can be related to the fact that in our context, females look for the desired values and characteristics more than men and they pay more attention to supervisor and physician roles of their clinical teachers. Based on the results obtained, identifying the roles and characteristics of an excellent role model can help medical students in their future profession and career path, as role models explicitly or implicitly have an impact on them. Medical schools should have programs to use excellent clinical role models in their curriculum to teach intangible skills to students. In conclusion; in every medical school, teachers are chosen by medical students as role models during their training programs to be emulated or avoided. Therefore, knowing these attributes, helps both teachers and students to transmit and apply the medical knowledge through the competencies and roles identified in this study.

##### **5. Limitation of the study**

This research was conducted only on a small population size. Therefore, research studies with much larger sample size would be required to ensure appropriate generalization of the findings of the study. Moreover, we propose in-

depth analysis to further determine the roles and characteristics of medical teachers, as we only used a structured questionnaire with pre-established items to gather data. Last but not least, we also suggest that further research focuses on the identification of the roles and characteristics that clinical teachers perceive as important for themselves.

## 6. Conclusions

The purpose of this study was to explore the perspective of three batches (students, interns, and residents) on the main roles and characteristics of a clinical teacher in which data were collected through a self-developed questionnaire. We also investigated the differences between females and males in terms of the roles of a clinical teacher. The results of this study highlight the importance of the characteristics and the roles of a clinical teacher as perceived by the cohorts in our context. Knowing the characteristics and roles of a clinical teacher can assist medical educators to recruit, retain and develop good medical teachers. Increasing the exposure of excellent clinical teachers to aspiring medical students should also be encouraged, as they have an impact on students' professional development and performance.

## Acknowledgments:

The authors wish to express their acknowledgments to students, interns, and residents for their contribution to this study. We also express our thanks to Mr. Naghibzadeh for helping us in conducting statistical analyses. This study was financially supported by Kerman University of Medical Sciences.

## Conflict of Interest:

There is no conflict of interest to be declared.

## Authors' contributions:

All authors contributed to this project and article equally. All authors read and approved the final manuscript.

## References:

- 1) Ash KJ, Walters KL, Prideaux JD, Wilson GI. The context of clinical teaching and learning in Australia. *Med J Aust.* 2012; 196(7): 475. doi: 10.5694/mja10.11488.
- 2) Bahman Bijari B, Zare M, Haghdoost AA, Bazrafshan A, Beigzadeh A, Esmaili M. Factors associated with students' perceptions of role modelling. *Int J Med Educ.* 2016; 7: 333-9. doi: 10.5116/ijme.57eb.cca2. PMID: 27743447, PMCID: PMC5116367.
- 3) Paice E, Heard S, Moss F. How important are role models in making good doctors? *BMJ.* 2002; 325: 707. doi: 10.1136/bmj.325.7366.707.
- 4) Jochemsen-van der Leeuw HG, Van Dijk N, Van Etten-Jamaludin FS, Wieringa-de Waard M. The attributes of the clinical trainer as a role model: a systematic review. *Acad Med.* 2013; 88(1): 26-34. doi: 10.1097/ACM.0b013e318276d070. PMID: 23165277.
- 5) Sternszus R, Cruess S, Cruess R, Young M, Steinert Y. Residents as role models: impact on undergraduate trainees. *Acad Med.* 2012; 87(9): 1282-7. doi: 10.1097/ACM.0b013e3182624c53. PMID: 22836846.
- 6) Boerebach BC, Lombarts KM, Keijzer C, Heineman MJ, Arah OA. The teacher, the physician and the person: how faculty's teaching performance influences their role modelling. *PLoS One.* 2012; 7(3): e32089. doi: 10.1371/journal.pone.0032089. PMID: 22427818, PMCID: PMC3299651.
- 7) Elzubeir MA, Rizk DE. Identifying characteristics that students, interns and residents look for in their role models. *Med Educ.* 2001; 35(3): 272-7. PMID: 11260451.
- 8) Beigzadeh A, Shokoohi M, Vali L. Characteristics of a capable University lecturer from the viewpoints of health services management students in Iranian medical universities. *Strides Dev Med Educ.* 2014; 11(3): 330-41.
- 9) Esmaili M, Haghdoost AA, Beigzadeh A, Bahmanbijari B, Bazrafshan A. Personal and Scientific Characteristics of Positive and Negative Role Models among Medical Educators from the Viewpoint of Dentistry and Pharmacy Students in Kerman University of Medical Sciences, Iran. *Strides in Development of Medical Education.* 2013; 10(3): 298-311.
- 10) Frank J, Jabbour M, Tugwell P. Skills for the new millenium: report of the societal needs Working Group, CanMEDS 2000 Project. *Ann R Coll Physicians Surg Can.* 1996; 29: 206-16.
- 11) Campos-Outcalt D, Senf J, Watkins AJ, Bastacky S. The effects of medical school curricula, faculty role models and biomedical research support on choice of generalist physician careers: a review and quality

- assessment of the literature. *Acad Med.* 1995; 70(7): 611-9. doi: 10.1097/00001888-199507000-00012. PMID: 7612127.
- 12) Yazigi A, Nasr M, Sleilaty G, Nemr E. Clinical teachers as role models: perception of interns and residents in a Lebanese medical school. *Med Edu.* 2006; 40(7): 654-61. doi: 10.1111/j.1365-2929.2006.02502.x. PMID: 16836538.
  - 13) Wright SM, Carrese JA. Excellence in role modelling: insight and perspectives from the pros. *CMAJ.* 2002; 167(6): 638-43. PMID: 12358197, PMCID: PMC122026.
  - 14) Faulkner LR, McCurdy RL. Teaching medical students social responsibility: the right thing to do. *Acad Med.* 2000; 75(4): 346-50. PMID: 10893116.
  - 15) Simon JL. A role guide and resource book for clinical preceptors. DHEW publication No. HRA. 77-14. Washington, D.C: US Department of Health, Education, and Welfare; 1976.
  - 16) Irby DM. Clinical teaching and the clinical teacher. *J Med Educ.* 1986; 61(9 Pt 2): 35-45. PMID: 3746867.
  - 17) Williamson HA Jr, Glenn JK, Spencer DC, Reid JC. The development of clinical independence: resident-attending physician interactions in an ambulatory setting. *J Fam Pract.* 1988; 26(1): 60-4. PMID: 3339307.