

*Review article*

## **Role Modeling: A Precious Heritage in Medical Education**

Amir Mirhaghi<sup>1</sup>, Hossein Karimi Moonaghi<sup>2</sup>, Simin Sharafi<sup>3</sup>, Amir Emami Zeydi<sup>1</sup>

<sup>1</sup>*PhD Candidate in Nursing, Department of Medical-Surgical Nursing, School of Nursing and Midwifery, Mashhad University of Medical Sciences, Mashhad, Iran*

<sup>2</sup>*Department of Medical Education, School of Medicine, and Evidence - Based Caring Research Center, Department of Medical-Surgical Nursing, School of Nursing and Midwifery, Mashhad University of Medical Sciences, Mashhad, Iran*

<sup>3</sup>*School of Nursing and Midwifery, Mashhad University of Medical Sciences, Mashhad, Iran*

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### **SUMMARY**

**Role modeling is a powerful form of learning and an integral part of medical education. Although role modeling has a longstanding history, it has not received enough attention in medical education. The aim of this study was to present a comprehensive review of the literature to describe dimensions of role modeling in medical education. Review of the literature was undertaken using the international databases with the following search terms or their combinations: “role modeling”, “observational learning” and “medical education” up to September 2014. Relevant articles were retrieved. A total of 39 articles were included in this review. The results showed that clinical excellence, humanistic personality and excellence in teaching composed three essential elements of role modeling. Basic outcomes of role modeling in medical education are humanism and professionalism. In conclusion, role modeling as an outstanding educational approach has been recommended for enhancing humanism and professionalism in medical education.**

***Key words:* role modeling, observational learning, medical education**

Corresponding author:

**Amir Emami Zeydi**

phone: +989355952357

e-mail: emamiza911@mums.ac.ir

## INTRODUCTION

A role model is an individual whose behavior is admired or imitated by others. This process is interpreted as role modeling (1). In educational pedagogy, role modeling is a unique teaching method for transferring the knowledge, skills, and values of the medical profession (2) as well as promoting educational achievement (3). The idea that humans can learn from the way that other people behave has historical roots in Plato and Aristotle. Aristotle said that "we learn through practice and the best practice is to follow an individual who is a characteristic model" (4). In ancient times, the best role models were chosen for students to be followed. The most characteristic of them are observed to be imitated. In fact, this naturalistic approach had been common for many centuries (5). In the mid-nineteenth century, this cognitive paradigm was challenged by the behaviorists like Pavlov, Thorndike and Skinner. Several animal experiments have indicated that learning happens through direct experience, not indirect one, and it is a product of the stimulus-response process that is expressed as conditioning (6). However, it did not take long that Miller, Dollard and Bandura explained the observational learning (modeling) as a behavior that was learned from observation and expressed the originality of cognitive processes in learning psychology (7).

A new beginning for looking at the concept of role modeling was started with the opinions of Dollard and Miller who considered intimated behavior as a kind of conditioning behavior which includes the same behavior, copying behavior and matched dependent behavior. They explained the role of the individuals in the learning habits and their interactions with the environment (8). However, Bandura criticized the neglect of cognitive processes. He defined learning as an internal cognitive process that may occur as immediate or late behavioral changes (9). He considered four distinct components including attention, retention, motor reproduction, and motivational processes in observational learning (10). All of these recognized the originality of cognitive processes in learning which provides theoretical support for the role modeling. While training students without the institutionalization of professional moral values is a major criticism to the medical education (11), the role modeling has been recognized as a distinguished educational method to

convey attitudes, behaviors, values and professional ethics to the students (12-14). Role modeling actually forms the core characters of the learners and has a unique power to transmit the values of medical profession and provide outstanding behavioral patterns for future health care providers to be trained (15). In spite of weak planning for the education through the role modeling, students implicitly and traditionally reproduce communication behaviors of faculty and clinical staff (16, 17). Therefore, developing role modeling capabilities in medical education and confronting with the relevant challenges in this regard are essential. The aim of this study was to present a comprehensive review of the literature in order to describe dimensions of role modeling in medical education.

## METHODS

A systematic search of the relevant literature was performed within international databases including PubMed/Medline, Scopus, Educational Resources Information Centre (ERIC), ProQuest as well as Google Scholar search engine using the following search terms or their combinations: "role modeling", "role model", "observational learning" and "medical education"

The search was limited to the English languages. Without time limit, all articles having the selected keywords in the title, abstract and text, including quantitative as well as qualitative approaches, up to September 2014 were included and evaluated. The eligibility of each study was assessed based on relevancy to the role modeling in medical education. Authors collaboratively discussed to reach consensus through selection process. Studies were excluded from final analysis if access to the full text articles were not available. Also, non-English language articles, as well as articles with weak methodology were excluded from this study. Reference lists of the included studies were hand-searched to ensure completeness of the search.

## RESULTS

The search strategy generated 1.067 titles and abstracts. After initial screening and evaluation, 957 articles were excluded. Removing duplicates and

using secondary screening resulted in 32 articles to be included for the review. Also, a manual search of article references added seven further papers. In total, 39 articles were eligible for final inclusion (Figure 1),

of which 16 were quantitative, 11 were qualitative and remaining were review articles. All articles included in this review were published between 1992 and 2014 and originated from peer-reviewed journals.

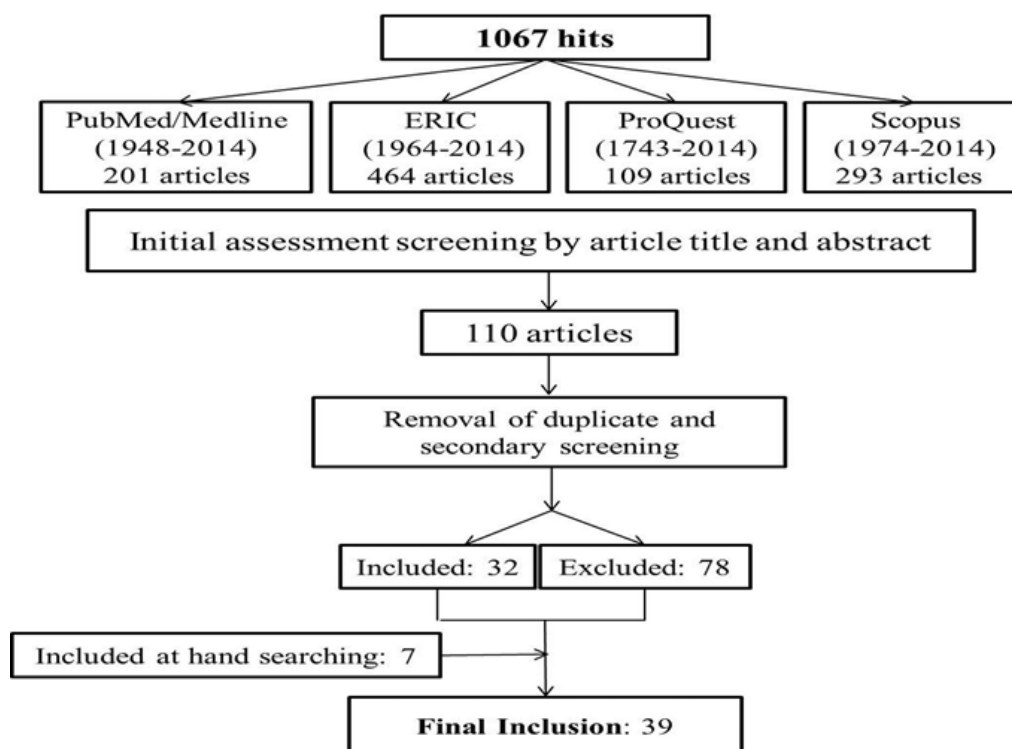


Figure 1: Literature search and retrieval flow diagram

The results showed that the role modeling in medical education is contributed with clinical excellence, ethics and teaching skills. Related functions were humanism and professionalism. A role model is defined by clinical excellence (15, 18-24) and humanistic personality (15, 19, 20, 22, 24), as well as effective teaching skills (21, 26).

**Clinical excellence:** clinical excellence and competency (15, 18-24) are essential elements of role modeling. Clinical competency is defined as well qualified clinical practice for the diagnosis and appropriate interventions for the patient and family as well as possessing required knowledge, skills, decision making ability, clinical reasoning and

effective communication skills with patients and staff (15, 19, 22-24).

**Humanistic personality:** It is an important character for a role model (15, 19, 20, 22, 24). Personal qualities for a role model include interpersonal skills, positive outlook, commitment to excellence and growth, integrity and leadership (20, 24, 25) and also characteristics like passion, integrity and good interpersonal communication, passion for the practice and teaching as well as consistent improvement (15, 19, 22). The significance of human character is that, if a person has a non-cooperative and inhumane attitude, it can turn him into an inappropriate model (21).

**Effective teaching skills:** Teaching skills include developing an understanding among learners, developing novel teaching methods and commitment to the empowerment of learning (21, 26), effective communication, providing feedback and reflective opportunities for student-centered learning (15, 19, 22, 23, 27). It has been reported that being a role model has strong relationship with significant teaching responsibilities, involving more than 25% of the time or 25 hours per week in teaching, holding the morning report as an attending physician, with the emphasis on the physician-patient's relationship (15,28), teaching psychosocial aspects of medicine and being senior resident (15). Some personality traits including non-participatory and inhumane attitude formed a hated character (21). Other barriers are being hasty, selfish and rigid, silent, unable to remember people and having broad and multiple responsibilities (20). A Canadian study reported that more than half of all medical students, according to professors, are indifferent about the anxiety of patients and their need to communicate that had negative effect on students (29). Studies also revealed that students who have immoral teachers, more repeatedly found themselves in immoral situations (30). Therefore, it can be said that the relationship between the role model and the patient plays an important role for students to select teachers as role models. A phenomenological study revealed that nurses who were known as the role model had five characteristics, including attention to the details, ability to establish communication and sincere attitude, being model and accepting others the way they are (31).

**Role modeling functions:** humanism and professionalism have been introduced as role modeling functions. Role modeling can cause developing humanism and professionalism. The human-centered approach is the core of practice in medicine (32) and teachers believe that students recognize, learn and utilize their humanistic behaviors. Reflective discussions were reported to be

very helpful for explaining their behaviors. Students imitated verbal and nonverbal behaviors such as the face to face look, respect for the patients and their preferences, personal relationships with patients regarding their cultural background, and considering the patient's emotional responses to diseases. This is due to the fact that clinical teachers are conscious of their role in transmitting humanistic behaviors, so role modeling is recognized as effective way to teach humanistic values to the students (33, 34). While physicians want to be known as humanistic persons, patients are more satisfied and reached better health outcomes (35).

Studies regarding physician-patient relationship showed that the more role models share their experiences with the students, the more improvement will be achieved in students' skills (32). Besides, it has been reported that ignoring patients as humans could present teachers as inappropriate role models (21). Role modeling is known as one of the most effective ways to promote professionalism in the medicine that can shape students' professional character (25, 36). Kolhan said that the first necessary thing to do for students to become professional is a significant focus on medical doctors who attribute the best professional characteristics (37). Professionalism is a concept that has been discussed from different aspects, providing good clinical care, maintaining good medical practice and education along with good communication with patients and colleagues based on human dignity (38). Professionalism also includes altruism, accountability, excellence, responsibility, honor and respect (39) or a set of values, behaviors and relationships that are associated with the field of public trust in profession in which people are committed to discipline through integrity, passion, dedication, continuous improvement, teamwork and excellence (40). Role modeling greatly facilitate the transmission characteristics of the desired features. Table 1 outlines the main characteristics of a role model.

**Table 1. The main characteristics of a role model**

Main elements	Descriptions	Details
<b>Clinical excellence</b>	Having competence at the bedside	Expertise, skills, and knowledge in identifying appropriate interventions for patients and families
	Interpersonal skills	Philanthropist and honest, supportive, considerate and respectful approach
<b>Humanistic personality</b>	Positive outlook	Enthusiastic, friendly, comfortable, and satisfied with job
	Commitment to excellence and growth	Work and commitment to accountability, high standards; multiple talents
	Integration	Being a model is a general feature
	Characteristics of leadership	Ability to inspire, emphasis on team building, strength and pride, excellent communication skills, influencing others without judging attitude
<b>Effective teaching skills</b>	Understanding and cooperation	Acceptance, interest in students
	Special teaching methods and philosophy	Student-centered, interaction between teacher and student, encouraging self-awareness, sense of responsibility for students
	Commitment to the development of learners	Conscious counselor, respect for learners' self-esteem

Table 2 outlines the basic features of the research articles included in the review.

## DISCUSSION

Role modeling consists of basic elements, including clinical excellence, humanistic personality and effective teaching skills. These elements have been reported in numerous studies that originate from well-known higher education systems. Role modeling as a value-based education is unique (15, 18-24). However, it is worth to mention that culture plays a central role in role modeling education. It has been reported that similarities between the student and the teacher can facilitate role modeling process.

Medical students from ethnic minorities are eager to follow teachers who are from their own ethnicity. In contrast, if students and teachers have multiple personality differences, greater effort is necessary to achieve the goals. Thus, differences between teacher and student should be accepted with open arms; also, the impact of differences should be minimized (26).

It should be noted that there are several concepts closely related to the role modeling that must be distinguished. Mentoring is a progressive process involving reflection, reframing and problem-solving (41). It can be said that the mentor is a person with experience in the organization that supports and encourages younger students giving his/her advice. Mentor as a friend and job advisor

helps students in research and educational activities, and also is a reliable source of information for them. Mentor is a good character who helps the student to achieve personal growth and personal development and facilitates their transition (42, 43). A mentor can also be a role consultant; however, the consultant plays a very limited consulting relationship with a student compared to a mentor whose role is limited to counseling (44). In this regard, the preceptor teaches his/her skills to the novice nursing students in order to prepare them for performing outstanding care. Preceptor helps nurses daily to enter the profession of nursing and clinical care efficiently (45). The concept of role playing education belongs to the social learning models which is different from role modeling. Role playing includes four-stages preparation and explanation of the work that is done, student preparation for the activity and discussion to clarify the roles (46). Hence, it becomes clear that role playing is much more limited than

role modeling which is a method for students to be familiar about the feelings and attitudes of an individual; for example, teachers can use role playing to teach the concept of pain.

## CONCLUSION

Role modeling approach has theoretical and practical background in medical education. Unique functions of role modeling include professionalism and humanism in education, and its role in the educational process is outstanding. Despite the challenges that are expected for role modeling, the central benefit of the transferring professional ethical values ensures professional services to the community. Finally, role modeling is recommended as a superior approach to improve the quality of education provided in medical education.

*Table 2: Summary of the basic features of the research articles that were included in the review*

Author (Year)	Country	Method	Main findings regarding role modeling
Lublin (1992)	Australia	Qualitative	Good personality, teaching ability, skillfulness and being knowledgeable are the most important characteristics of a role model
Reuler&Nardone (1994)	USA	Review	Interacts skillfully with patients, providing supervision and demonstrating expertise at the bedside, self-criticism, assuming responsibility, recognizing limitations, humility, respect, and sensitivity for patients and trainees, and a wholesome sense of humor were the characteristics of role models.
Wright (1996)	Canada	Descriptive	Clinical skills, personality, and teaching ability were rated the three most important factors in selecting a staff physician as a role model.
Ambrozyet al. (1997)	USA	Descriptive	Clinical reasoning was considered the most important characteristic of a role model as well as enthusiasm and love for their work.
Wright (1997)	Canada	Descriptive	Personality, clinical skills, competence, and teaching ability were most important in the selection of a role model.
Beaudoinet al. (1998)	Canada	Descriptive	Teachers displayed the humanistic characteristics of interest.
Wright et al. (1998)	USA	Case-control	Having greater assigned teaching responsibilities; spending more than 25 percent of one's time teaching; spending 25 or more hours per week teaching; conducting rounds when serving as an attending physician; stressing the importance of the doctor-patient relationship in one's teaching; teaching the psychosocial aspects of medicine and having served as a chief resident were considered as the most important characteristics of a role model.

Magee &Hojat (1998)	USA	Descriptive	Characteristics of a role model includes conscientiousness, striving for achievement, competence, dutifulness, trust, assertiveness, and altruism.
Althouse et al. (1999)	USA	Qualitative	The role models' approaches to teaching, their attitudes towards teaching and learning, their emphasis on clinical competence in their teaching, their roles external to their specific responsibilities, and their general affect are prominent.
Hojat et al. (1999)	USA	Descriptive	To be attentive, to have deeper intellectual curiosity, to have higher aspiration levels, to have more vivid imaginations, to be more receptive to their emotions, to be interested in mental stimulation, and to think carefully before acting were the most important characteristic of a role model.
Matthews (2000)	Saudi Arabia	Qualitative	Positive behavior towards patients, positive behavior towards junior colleagues, suboptimal skills of subject content presentation, and insufficient encouragement for trainees to actively participate in patient management were the most important characteristic of a role model.
Côté&Leclère (2000)	Canada	Qualitative	The ability to conduct interviews effectively and politely, ability to understand and involve the patient, and, in some cases, the ability to handle emotionally-charged situations were considered the most important characteristics of a role model.
Elzubeir&Rizk (2001)	UAE	Descriptive	Personality and teaching and clinical skills were ranked as the top three factors for a role model.
Wright &Carrese (2002)	USA	Qualitative	Personal qualities included interpersonal skills, a positive outlook, a commitment to excellence and growth, integrity and leadership. Teaching included establishing rapport with learners, developing specific teaching philosophies and methods, and being committed to the growth of learners. Being a strong clinician was regarded as necessary but not sufficient for being an exemplary physician role model.
Paice et al. (2002)	UK	Review	Enthusiasm, compassion, openness, integrity, and good relationships with patients as attributes they seek in their role models.
Wright &Carrese (2003)	USA	Descriptive	Learners prefer role models similar to them.
Kenny et al. (2003)	Canada	Review	Necessity of professional character formation.
McLean (2004)	South Africa	Review	Role models should match the student profile.
Yazigiet al. (2006)	Lebanon	Descriptive	Clinical skills in positive role models versus inadequate humanistic and collaborative attitudes in negative models.
Weissmann et al. (2006)	USA	Qualitative	Clinical teachers did not typically address the human dimensions of care overtly.
Jouert et al. (2006)	South Africa	Qualitative	Their idea of a good role model is a clinically and academically competent doctor who cares about patients, has good interpersonal skills, and who can inspire students.

Cruess et al. (2008)	Canada	Review	Clinical competence encompasses knowledge and skills, communication with patients and staff, and sound clinical reasoning and decision making. Teaching skills are the tools required to transmit clinical competence. A student-centered approach in incorporating effective communication, feedback, and opportunities for reflection is essential to effective role modeling. Personal qualities include attributes that promote healing, such as compassion, honesty, and integrity.
Lynoe et al. (2008)	Sweden	Descriptive	Physicians involved in the education of medical students seem to teach medical ethics as role models.
Sutkin et al. (2008)	USA	Review	Physician, teacher, and human characteristics have been mentioned.
Perry (2009)	Canada	Qualitative	The themes of attending to the little things, making connections, maintaining a light-hearted attitude, modeling, and affirming others are presented.
Lombarts (2010)	Netherlands	Descriptive	'Feedback', 'a professional attitude towards residents' and 'creating a positive learning climate'.
Rezai-Rashtiet al. (2010)	USA	Narrative	A need for a greater representation of minority teachers.
Stenfors-Hayes et al. (2011)	Sweden	Qualitative	To be a good teacher or supervisor focuses on students' learning or growth. Someone who conveys knowledge or shows how things are done. Someone who responds to students' content requests in a partially student-centered perspective.
Byszewskiet al. (2012)	Canada	Descriptive	Students identified role modeling as the single most important aspect of professionalism.
Jochemsen-van der Leeuw (2013)	Netherlands	Review	Patient care qualities, teaching qualities, and personal qualities.
Passi et al (2013)	UK	Review	Demonstration of high standards of clinical competence, excellence in clinical teaching skills and humanistic personal qualities.
Freed & Franks (2013)	USA	Narrative	Medical trainees also need reliable tools that will help them develop a familiar and lasting critical thinking process for decisions about novel professional and ethical dilemmas throughout their careers.
Van Roermundet al. (2014)	Netherlands	Qualitative	Personal professional characteristics like being a role model and having an open and enthusiastic attitude. They all thought that having a specific knowledge base was essential for teaching as well as learner-centered environment.
MokhtariNouriet al. (2014)	Iran	Qualitative	"Effort for humanistic and professional growth of students," "individual and managerial empowerment of instructor," "instructor and student's modeling," "motivation and effort of student," "strategies governing the education system," and "appropriate facilities and equipment,".
Jochemsen-van der Leeuw (2014)	Netherlands	Descriptive	An equal number of items addressing personal (Heart), teaching (Head), and clinical (Hands-on) qualities, thus demonstrating that competence in the "3Hs" is a condition for positive role modeling.



Benbassat (2014)	Israel	Review	The author suggests that the value of role modeling can be advanced not only by targeting role models and improving faculty performance but also by enhancing students' reflective assessment of their preceptors' behaviors, especially so that they can better discern those that are worth imitating.
Balint et al. (2014)	Hungary	Experimental	Negative role-models and female role-models induced higher levels of mentalization compared to positive and male role-models.
Martinez et al. (2014)	USA	Descriptive	Exposure to role-modeling predicts trainees' attitudes and behavior regarding the disclosure of harmful errors. Negative role models may be a significant impediment to disclosure among trainees.

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## Učenje po modelu: dragoceno nasleđe u medicinskom obrazovanju

Amir Mirhaghi<sup>1</sup>, Hossein Karimi Moonaghi<sup>2</sup>, Simin Sharafi<sup>3</sup>, Amir Emami Zeydi<sup>1</sup>

<sup>1</sup>Doktorand iz oblasti bolničke nege, Departmanu za edukaciju sestara iz oblasti hirurgije, Fakultet za sestrinstvo i akušerstvo, Univerzitet medicinskih nauka Mashhad, Mashhad, Iran

<sup>2</sup>Departman za medicinsku edukaciju, Medicinski fakultet, Centar nege za istraživanja zasnovana na dokazima, Departman za edukaciju sestara iz oblasti hirurgije, Univerzitet medicinskih nauka Mashhad, Mashhad, Iran

<sup>3</sup>Fakultet za sestrinstvo i akušerstvo, Univerzitet medicinskih nauka Mashhad, Mashhad, Iran

### SAŽETAK

Učenje po modelu je vrlo efikasan način učenja i sastavni deo medicinske edukacije. Premda učenje po modelu ima dugu istoriju u medicinskoj edukaciji, još uvek mu se ne pridaje dovoljan značaj. Cilj ove studije bio je da predstavi obiman pregled literature kako bi se odredio opseg učenja po modelu u medicinskoj edukaciji. Pregled literature je urađen pregledavanjem međunarodnih baza podataka preko pojedinih ključnih reči ili njihovih kombinacija: "učenje po modelu", "učenje posmatranjem", "medicinska edukacija", u periodu do septembra 2014. godine. Obradili smo značajne članke. Pregledom je obuhvaćeno ukupno 39 članaka. Rezultati su pokazali da klinička izvrsnost, humanost, kao i izvrsnost u podučavanju čine tri glavna elementa učenja po modelu. Osnovni ishodi učenja po modelu u medicinskoj edukaciji su humanost i profesionalnost. U zaključku, učenje po modelu, kao izvanredan edukativni pristup, preporučuje se sa ciljem širenja humanizma i profesionalnosti u medicinskoj edukaciji.

*Ključne reči: učenje po modelu, učenje posmatranjem, medicinska edukacija*