

### The Viewpoints of Medical Graduates Toward Their Achievement to Expected Competencies, Kerman, 2013

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**Background:** Medical graduates should acquire the necessary skills to provide desirable health services. So it is necessary for medical schools to evaluate their students according expected competencies. The aim of present study was to investigate the viewpoints of medical graduates toward their achievement to these expected capabilities.

**Methods:** This research was a cross sectional study carried out in the Kerman medical school, all medical students who had graduated in 2010 and 2011 selected. We analyzed self assessment of graduates' competencies. The instrument used was a questionnaire including demographic data and 77 competencies in 4 domains: clinical and communication skills, practical procedures, medical ethics and legal responsibility and health informatics. The level of each competency was assessed on a five-point scale. The score of each participant was calculated over ally and for each domain. The score range was from 0 to 100. Data was analyzed by SPSS version 19.

**Results:** Fifty-seven graduates participated in our study. The overall mean and standard deviation of participants' competency score was  $51.25 \pm 12.19$ . There was no difference between males and females. Accurate patient evaluation, performing suture, knowledge about their responsibilities, issuance of medical certificate, familiarity with website had highest scores. Radiography interpreting, measuring Hct, expectations of a physician in Islam and jurisprudence, regulation of sex change, biostatistics had lowest scores.

**Conclusions:** Our study showed that according to graduates self - assessment, they were good in some competencies such as accurate patient evaluation but had undesirable confidence for some important capabilities like radiography request and interpreting. If all of these competencies are essential for graduates, medical schools should make sure that students have acquired all skills before graduation.

**Key words:** Competencies, Graduates, Medicine, Self assessment

### رؤیة خريجي كلية الطب بالنسبة الى حصولهم على المؤهلات المنشورة عندهم ، في كerman ١٣٩٢ هـ.ش.

**التصويد و الهدف:** يجب أن يكون هناك مبررات كافية عند خريجي كلية الطب في اداء منبرتهم من حربه صميه و علاجيه.لذا يجب على كليات الطب اختيار طلابهم قبل التخرج على اساس ما يتطلبه المجتمع من خبره طبيه. إن الهدف من هذه الدراسة هو تعيين مستوى الكفاءة من خلال رؤیة خريجي كلية طب.

**الطوبى:** إن هذه الدراسة كانت بشكل مقطعي و تم اختيار طلاب عام ٨٢ و ٨٣ هـ.ش في جامعه كerman. تم تجميع المعلومات عبر استمارات مؤلفه من قسمين الاول منبرهم يستعمل على معلومات ديموغرافية و الثاني يوجد فيه اسئلة تقييم مستوى المؤهلات المطلوبه عند الطبيب العام. تم الطلب من المستركون تقييم انفسهم. تم تحليل المعلومات بواسطة برنامج spss 19. تم اعطاء علامة لكفاءة كل شخص و كان قد وضع حد العلامات من صفراالى مئه.

**النتائج:** اشترك ٥٧ شخص في هذه الدراسة كل معدل الكفاءة  $51.25 \pm 12.19$  و لم يكن هناك اختلاف زويقيه بين الجنات و الذكور. إن المعايير الرقيقه للمريض. تصميد الجروح. مستوى معرفه المسئوليات العرفيه. كتابه تقرير طبي. العلم بالمواقع الطبيه كانوا جميعا ذو اعلى امتياز و تفسير صور الاعمه. حساب الريماتوكريت. الامور المطلوبه من الطبيب في الاسلام و الفقه. قوانين تغيير الجنس. و الالهصاء الحيوي كانوا جميعا ذو امتياز متدنى.

**الاستنتاج:** اشارت هذه الدراسة الى ان كان هناك مبراره كافيه عند الاطباء في مجال معايير المرضى و لكن لم يكن هناك مبررات كافيه في تفسير صور الاعمه و الاعتماد على النفس. لذا يجب على كليات الطب الاطمئنان من مستوى المؤهلات قبل تخرج طلابهم .

**الكلمات الرئيسية:** الطب، تقييم ذاتي، المتخرجين، الصلاحيه.

### كرمان ميڈیکل یونیورسٹی کے طلباء کا اپنی کامیابیوں اور ان سے کی جانے والی توقعات کا جائزہ

**بیک گراؤنڈ:** میڈیکل طلباء کو صحت عامہ کی خدمات پیش کرنے اور صحیح علاج کرنے کی صلاحیتوں کا حامل ہونا چاہیے۔ لہذا میڈیکل یونیورسٹیوں کو چاہیے کہ طلباء کے فارغ التحصیل ہونے سے قبل ان کی پیشہ ورانہ صلاحیتوں کا جائزہ لیں۔ اس تحقیق کا مقصد خود طلباء کی نظر میں ان کی توانائیوں کا جائزہ لینا ہے۔

**روش:** یہ ایک وقتی تحقیق تھی جو کرمان میڈیکل یونیورسٹی میں انجام دی گئی تھی۔ یہ تحقیق جو دوہزار تین اور دوہزار چار میں انجام دی گئی تھی اس میں ان ہی برسوں میں داخلہ لینے والے طلباء نے شرکت کی۔ اس تحقیق کے لئے دو طرح کے سوالناموں سے استفادہ کیا گیا، پہلے سوالنامے میں ڈیموگرافیک سوالات تھے۔ دوسرے میں ڈاکٹروں کی متوقع توانائیوں کے بارے میں سوالات کئے گئے تھے۔ تحقیق میں شرکت کرنے والوں سے کہا گیا تھا کہ وہ اپنی توانائیوں کا جائزہ لیں۔ ڈیٹا کا تجزیہ ایس پی ایس ایس انیس سے کیا گیا۔ ہر شعبے میں سو نمبر تھے۔

**نتیجے:** اس تحقیق میں ستاون طلباء نے شرکت کی۔ طلباء اور طالبات کے نمبروں میں کوئی خاص فرق نہیں تھا۔ بیمار کا باریک بینی سے معائنہ، ٹانگے لگانا، پیشہ ورانہ توانائیوں کے بارے میں آگہی، میڈیکل سرٹیفیکٹ دینے کی صلاحیت، ریڈیو گرافی کی وضاحت کرنے کی صلاحیت، ہیماٹوکریٹ کی مقدار کا صحیح اندازہ لگانا، اسلام و فقہ کی معلومات، اور جنسیت کی تبدیلی کی معلومات، اور وائٹل علامتوں کی آگہی جیسے مسائل میں نمبر سب سے کم تھے۔

**سفارش:** میڈیکل طلباء نے بعض مسائل میں جیسے بیمار کے معائنے میں عمدہ توانائیوں کا مظاہرہ کیا لیکن بعض مسائل جیسے ریڈیو گرافی کی وضاحت میں خود اعتمادی کا مظاہرہ نہیں کیا۔ میڈیکل طلباء کو ہر طرح سے پیشہ ورانہ صلاحیتوں کا حامل بنانے کے لئے ان کی مکمل ٹریننگ کی ضرورت ہے۔

**کلیدی الفاظ:** میڈیکل ٹریننگ، توانائیاں، بیمار کا معائنہ۔

### دیدگاه دانش آموختگان رشته پزشکی نسبت به دستیابی آنها به صلاحیتهای مورد انتظار، کرمان، ١٣٩٢

**زمینه و هدف:** دانش آموختگان پزشکی باید از مهارت های لازم برای ارائه خدمات بهداشتی و درمانی مطلوب برخوردار باشند بنابراین لازم است دانشکده های پزشکی قبل از فارغ التحصیلی دانشجویان خود را بر اساس شایستگیهای مورد انتظار ارزشیابی نمایند. هدف پژوهش حاضر بررسی میزان توانمندی از دیدگاه دانش آموختگان پزشکی بود.

**روش:** پژوهش حاضر یک مطالعه مقطعی بود که در آن کلیه دانش آموختگان ورودی ٨٢ و ٨٣ دانشگاه کرمان انتخاب شدند. جهت جمع آوری اطلاعات از پرسشنامه دو قسمتی استفاده شد که بخش اول آن اطلاعات دموگرافیک و قسمت دوم سوالاتی بر اساس توانمندیهای مورد انتظار از پزشکان عمومی بود. از شرکت کنندگان خواسته شد تا توانمندی خود را در هر حیطه ارزیابی نمایند. نتایج مطالعه با استفاده از نرم افزار آماری spss19 مورد تجزیه و تحلیل قرار گرفت. نمره توانمندی فرد در هر حیطه محاسبه گردید که در دامنه صفر تا صد بود.

**یافته ها:** در مجموع ٥٧ دانش آموخته در مطالعه شرکت کردند. میانگین و انحراف معیار نمره کلی توانمندی کلی ١٢,١٩ ± ٥١,٢٥ بود که در دانشجویان مونث و مذکر تفاوت معنی دار آماری نداشت. ارزیابی دقیق بیمار، بخیه زدن، آگاهی درباره مسئولیتهای حرفه ای، صدور گواهی پزشکی، آشنایی با وبسایتها بالاترین امتیاز و تفسیر رادیوگرافی، اندازه گیری هماتوکریته، انتظارات از پزشک در اسلام و فقہ، قوانین تغییر جنسیت و آمار حیاتی کمترین امتیاز را داشتند.

**نتیجه گیری:** مطالعه ما نشان داد که دانش آموختگان پزشکی در برخی از مهارتها مانند ارزیابی دقیق بیمار، مهارت لازم را در سطح خوب دارا بودند اما در برخی مهارت های مهم دیگر مانند درخواست و تفسیر رادیولوژی، صلاحیت کافی نداشتند. بنظر میرسد لازم است که دانشکده های پزشکی قبل از فارغ التحصیلی از به نحوی، از حصول شایستگی های مورد انتظار توسط دانشجویان اطمینان حاصل کنند.

**واژه های کلیدی:** پزشکی، خود ارزیابی، دانش آموختگان، صلاحیت

## INTRODUCTION

The successful completion of a medical school education should provide students with a level of knowledge and skills necessary to carry out a doctor's daily duties(1). They should acquire the necessary knowledge and skills for management of health services with a scientific background and necessary skills to conduct research and be able to make plans to improve the health level of the community (2) . In other words, as well as, Learning theoretical knowledge ,the ability of careful observation, analyze and applying theoretical knowledge according the patient's condition, learning practical skills and the ability to communicate with others are the main characters expected and required for them (3). While the level of training is usually evaluated in medical exams, it stands to reason that the results of these exams do not represent the whole truth of how well-prepared a medical student feels at doing a doctor's job (1). The Viewpoints of graduates who have been in the workplace can be helpful for educational systems to revise training programs and enhance curriculum quality and productivity(4). In medical education we can mention quality when students achieve to required competencies determined in the objectives of training programs(5). Studies that evaluated the capabilities of general practitioners and medical graduates show that the situation is not so good(3, 6, 7). Undoubtedly this situation would cause stress among young physicians and likely impede the provision of desirable services to the patients(7).

Iranian General Medical Council approved "The minimum expected competencies of medical graduates" in 2009. These competencies are categorized in several domains including: health promotion, disease prevention and physician roles in health care system, clinical and communication skills, practical procedures, medical ethics and legal responsibilities, health Information Technology, research and lifelong learning (8). Each medical school need to make sure that its graduates have acquired these competencies. The aim of present study was to investigate the viewpoints of medical graduates toward their achievement to these expected capabilities through self assessment.

## METHODS

This research was a cross sectional study carried out in Afzalipour medical school, Kerman, IRAN. All medical students who had graduated in 2010 and 2011 were selected by census method. We analyzed self assessment of graduates' competencies. The instrument used was a questionnaire including demographic data, participants' grade point average and 77 competencies in 4 domains: clinical and communication skills, practical procedures, medical ethics and legal responsibility and health informatics. The level of each competency was assessed on a five-point likert scale, 1 for very weak and 5 for very good. We also asked them to rank the importance of each competency on a three-point scale, 1 for insignificant and 3 for significant importance.

The validity of the questionnaire confirmed by a number of experts and its reliability determined using Alfa Cronbach 0.8. Data was analyzed by SPSS version 19. The score of each

participant was calculated (total scores of each domain minus the number of the competencies in that domain, divided by the maximum minus the minimum score in that domain multiplied by a hundred). The score range was from 0 to 100. Zero indicates a very weak competency and one hundred for a very good competency. The mean and standard deviation of scores was calculated as overall mean and for each domain. Then compared between males and females using independent T-test.

## RESULTS

Eighty-four medical students graduated from Kerman Faculty of Medicine during 2010 and 2011. Fifty-seven graduates (68%) participated in our study. The mean and standard deviation of participants' age, grade point average and pre-internship test score was 28.61± 2.2 years, 15.84±1.16, 124.01±18.07, respectively. Twenty –nine graduates were (51%) males and 29 (51%) married. Table1 shows the overall mean score and the mean score of each domain for medical graduates' competencies.

**Table 1. The overall mean score and the mean score of each domain for medical graduates' competencies**

Domain	Mean± SD
Clinical and communication skills	60.48±10.84
Practical procedures	47.27±11.18
Medical ethics	59.64±20.50
Legal responsibility	47.48±20.01
Health informatics	51.93±23.08
Overall competency	51.25±12.19

The overall mean and standard deviation of participants' competency score was 53.42 ± 12.5 in males and 49.4 ±11.89 in females. This difference was not statistically significant in independent T- test. (pv>0.05). Also no statistically significant difference was observed in the mean and standard deviation of participants' competency score for each domains between males and females (pv>0.05).There was not a statistically significant relationship between the overall mean score and participants' grade point average, pre internship test score and duration of graduation. The mean score of importance of each competency in each domain was not statistically significant between males and females participants except in the clinical and communication skills that males assessed it more important than females. (pv=0.034).

The highest scores in each domain belonged to ability to accurately evaluate patient by history, physical examination and diagnostic procedures, performing suture, knowledge about physician's responsibilities, Issuance of medical Certificate, familiarity with websites and the lowest scores in each domain belonged to radiography request and interpreting, measuring Hct by micro tube, expectations of competent physician in Islam and jurisprudence, regulation of sex change, applying biostatistics .( Table 2).

**Table 2. The highest and lowest mean score of competencies in each domain according graduates' viewpoint**

Domain	Competency	Mean±SD
Clinical and communication skills	Highest score Ability to accurately evaluate patient by history , physical examination and diagnostic procedures	3.94±0.71
	Lowest score radiography request and interpretation	3.00±0.95
Practical procedures	Highest score Performing suture	4.4±0.67
	Lowest score Measuring Hct by microtube	1.45±0.75
Medical ethics	Highest score Knowledge about physicians responsibilities	3.52±0.93
	Lowest score Expectations of competent physician in Islam and jurisprudence	3.07±1.09
Legal responsibility	Highest score Issuance of medical Certificate	3.2±0.96
	Lowest score Regulation of sex change	2.58±1.04
Health informatics	Highest score Familiarity with websites	3.23±1.00
	Lowest score Applying biostatistics	2.8±1.03

**Table 3. The most and less important competency according graduates' viewpoint**

Domain	Competency	Mean±SD
Clinical and communication skills	Most important Ability to engross the trust of patients and society	2.89±0.30
	Less important Radiography request and interpreting	2.52±0.6
Practical procedures	Most important Adult CPR Approach to pneumothorax	2.87±0.38
	Less important Skin KOH preparation	1.53±0.65
Medical ethics	Most important Knowledge about physicians responsibilities	2.76±0.46
	Less important Expectations of competent physician in Islam and jurisprudence	2.41±0.65
Legal responsibility	Most important Issuance of death certificate	2.64±0.58
	Less important Regulation of sex change	2.39±0.7
Health informatics	Most important Familiarity with websites	2.55±0.6
	Less important Applying biostatistics	2.44±0.6

Table 3. shows the most and the less important competency according graduates' viewpoint.

**DISCUSSION**

Our study revealed that Kerman medical graduates assessed their capabilities intermediate. Poor Amiri and colleagues reported the competency of Kerman Medical graduates was intermediate in diagnosing and treating orthopedic problems. It recommended that universities recognize weaknesses of graduated general practitioners according to a compiled program. Moreover, annual education programs can prevent more problems from occurring in the work setting and higher levels of education of these general practitioners(9).

Mahram and colleagues revealed Of 33 target skills, lack of desirable professional skills in 16 items was found in at least half of the physicians. This study concluded, revision in the contents of clinical educational courses and based on real need, increasing skills training, collecting and strict execution of “Log Book” in all clinical internship courses, establishment of “OSCE” method for assessment of skills in

intern trainees, and designation of re-educative workshops for training skills in graduate physicians, are suggested(3). Moattari and Fallahzadeh showed that medical graduates of Shiraz University had lowest scores in geriatrics; nutrition, practice management, and advanced procedures .They concluded their medical education program is more patient-centered rather than community oriented. Therefore, improving the competencies needed by the society such as geriatrics, nutrition, practice management, and advanced procedures requires more attention in the educational programs as well as continuing medical education. (6). In Osvaris study, it is found that the senior medical students assessed their level of knowledge and skill between low and intermediate. It concluded that the curriculum of the medical school does not satisfy the expectations that the newly graduated physicians have the sufficient knowledge and skills necessary for the primary health care services(2). Ghazanfari found the existing adjustment between clinical training and the occupational needs of the medical graduates is not completely adequate and satisfying .Thus the need for evaluating the quality of clinical training is emphasized to

increase the effectiveness of educational programs for future occupation of medical students(10).

Present study showed that male and female participants assessed their capability at similar levels. In this context, there are conflicting results. Some findings indicated that male students assess their capability higher and female students assess it lower than their teachers' evaluation, while, some showed there is no difference between male and female students self-assessment(6).Mahram found that the skill of urinary catheterization in male and female patients, by male or female physicians, both showed significant difference. The relationship between the gender of physician and the skills of management of a normal vaginal delivery showed a significant difference whereas such relationship between the gender and management of post delivery complications demonstrated an insignificant difference(3). Poor Amiri revealed no difference between male or female physicians in diagnosing and treating orthopedic problems(9).

Taleb Abadel and Hattab revealed that graduates in general, and those of younger age groups in particular, tend to overestimate their clinical skills and competency(1), our study also showed a weak reverse relationship between age and graduate self assessment scores but it is not significant statistically .

Present study revealed competencies such as ability to accurately evaluate patient by history, physical examination and diagnostic procedures, performing suture, knowledge about physician's responsibilities, Issuance of medical Certificate, Familiarity with websites had highest and competencies such as request and interpreting of radiography, measuring Hct by micro tube, expectations of competent physician in Islam and jurisprudence , regulation of sex change, applying biostatistics had lowest scores in each domain . Moattari found the highest scores belonged to the competencies including case presentation, basic procedures , tests interpretation and diagnostic decision-making(6). In Amini's study, medical interns evaluated themselves weak in competencies like LP, tracheal intubation, putting splint and chest tube ,removing a foreign body from the eye and ear (7).Mahram showed that general practitioner had no perfect and satisfactory capability in significant number of practical skills (3). Poor Amiri demonstrated the highest competency level was related to the domains of treatment of fractures and dislocation, the initial treatment of open fractures, and diagnosis of fracture and dislocation and the lowest competency level was related to the domains of congenital deformity of feet, musculoskeletal system tumors, and congenital dislocation of the hip (9).

Mirfeizi suggested "implementation of OSCE (Objective Structured Clinical Examination)is as a reliable and valid means of evaluating knowledge and clinical practice of midwifery students"(11),but our study was conducted as self assessment. It is an educational tool to measure knowledge and skills for adults (3, 6).Self-assessment programs can promote reflection on personal performance, identify reactions to self-assessment, evaluate the reliability of marking, identify reasons for discrepancies between scores of assessor and assessee(11) .There are several studies

evaluating the abilities of their students and graduates through self assessment(3-7,9,10,12-16). Taleb Abadel found there is a wide discrepancy between the graduates' self-assessment and experts' assessment, particularly in the level of inadequate performance. While only 12.4% of the graduates perceived their clinical competency as inadequate, the experts rated more than 32% of the graduates as inadequate(1).

Delaram and Tootoonchi revealed the results of instructors' assessment and that of students are similar. This may indicate that students can judge their own performance, to some extent, similar to their instructors. Students' opinions on their own performance and using it by instructors in student assessment may help in correction of contemporary evaluation scores (14). Self-assessment without comparison to some external standard such as an expert rater may not allow recognition of serious weaknesses, particularly in residents and physicians early in their careers. However, the process of comparing self-assessments with external standards can only lead to improvement if the physician is made aware of discordance between his/her self-assessment and an assessment based on credible data and established standards(1). Preliminary research does indicate that self-assessment of clinical skills in medical schools improves the ability to self-assess. Brown and Knight suggest that self-assessment fosters a different, more powerful view of the student than does traditional assessment (7) .There are several reasons for inaccuracy in self- assessment. Students do not understand what is expected of them. Most medical students are people who have performed well at school and have received strong positive feedback from a young age, giving them a self- confidence that may be resistant to modification. Scoring of potential or ideal (rather than actual) performance and effort rather than achievement. Accuracy in self-assessment of skills can be fostered by performance-based feedback along with explicit criteria for students (7).

Our study showed that graduating medical students were good in some competencies such as accurate patient evaluation by history, physical examination and diagnostic procedures, performing suture, knowledge about their responsibilities, issuance of medical certificate, familiarity with website. They had undesirable capability in radiography request and interpreting, measuring Hct by micro tube, expectations of competent physician in Islam and jurisprudence, regulation of sex change, applying biostatistics. Due to the specific nature of medicine, medical graduates should acquire the necessary knowledge and skills to provide optimum health services. Enhancing the quality of medical training programs can result in more competent graduates and more effective care to the community. So it is necessary for medical schools that evaluated their students according expected competencies before graduation. Paying attention to the core curriculum during clerkship and internship courses is suggested. It is true that there are some weak points about self assessment, but it could be used as a first step in evaluation of the capability and it is necessary to use more objective tests in the next steps.

Our evaluation method was based on graduates self – assessment. Although self-assessment can motivate students to acquire the expected competencies, participants may evaluate themselves lower or higher than actual situation in

it. It's suggested that in the future studies, other methods such as objective structured clinical examination (OSCE) used to assess graduates.

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