Audit on Clinical Competency of Fresh Medical Graduates in a Malaysian Private University Using Kirkpatrick Level-1 Evaluation Model

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ABSTRACT

Clinical competency is the core of the medical curriculum. Careful ongoing evaluation of clinical competency is required to ensure continuous reviewing for curriculum development. The objective of this study was to investigate self-perceptions of clinical competency of fresh medical graduates using the Kirkpatrick framework – the most convenient and widely used model for measuring clinical competency. A cross-sectional study was conducted among 50 fresh medical graduates of Widad University College, Malaysia in 2019 using a standardised questionnaire containing 43-items of competency. Respondents were asked to rate self-perceptions of his/her competency in these attributes using a five-point Likert scale against each attribute, where 5 = always competent and 1 = never competent. The response rate was 92%. Out of 43 items, graduates were always competent in taking clinical history and examining a patient thoroughly; frequently competent in eight attributes; sometimes competent in 29; and occasionally competent in four. The graduates have not yet started their houseman-training; and thus, got fewer chances to practice all the procedures. It is expected that graduates' competency will improve during their houseman training. There is scope for improvement, as faculty need to pay more attention to improving student competency by arranging additional training. The teaching of clinical competency also needs integration with the pre-clinical phase for early exposure. The findings have direct implications for faculty development towards competency-based

education that would bridge the gap between education and practice. This study offers other medical schools a window towards comprehensive use of competency tools to assess the competency of their graduates.

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INTRODUCTION

Medicine is considered the "global profession of physicians" and requires universal essential competency that must be possessed by all physicians. This competency guides the teachers, students and physicians about what they are supposed to teach, what they are expected to learn and what universal educational experiences they should possess accordingly (1). Thus, globally medical schools provide educational experiences necessary for the acquisition of essential competency levels of their graduates regardless of where they receive their medical education from (2). Professional competency has been defined as the habitual and judicious use of communication, knowledge, technical skills, clinical reasoning, emotions, values and reflection in daily practice for the benefit of the individual and community being served (3). International institutions such as the General Medical Council (GMC), Accreditation Council for Graduate Medical Education (ACGME), the American Board of Internal Medicine (ABIM) and the Institute for International Medical Education (IIME), have set the list of competencies for medical graduates (4–7).

Clinical competency is one of the key domains of the professional competency of physicians (8) and is vital in terms of correct decision-making and successful care of the patient (9). Inadequate competency in the clinical skill can endanger patient safety (10) and may contribute to a stressful workplace for fresh graduates (11). It is reported that newly qualified doctors lack adequate skills necessary for internship duties (12). Their knowledge and skills have been reported to vary from individual to individual and also may not fulfil the faculty's expectations (13). Many studies have reported that a significant number of fresh medical graduates perceived their competency in basic procedures as inadequate (2, 14–15). It has also been shown that explicit requirements in practical skills set by an institution are often not synchronised with the delivery of teaching (2, 16).

Clinical competency is considered as the core curriculum of medical education. Educational programmes are essentially related to the modification of students' knowledge, attitudes and abilities (17–18). It is the objective of every medical school's curriculum globally to attain a satisfactory standard of clinical competency (19). Implementation of well-designed clinical competency training in the core curriculum of the undergraduate medical education programme is vital to obtain the desired learning outcome of the programme. To maintain the quality, careful ongoing evaluation of these competency training is required. Since student learning is the goal of education, assessment of student learning would reflect the effectiveness of the programme and accomplishment of its core task (20). Therefore, along with proper planning and implementation, it is also important to perform curriculum evaluation accurately to check the capability of educational programmes, and to get data to allow

faculty to determine if there is a need for any modification in the curriculum or programme (17).

There are different approaches and models available for the evaluation of a curriculum or educational programme. Kirkpatrick's four-level framework model is a commonly used model which measures: reactions at level-1, learning at level-2, behaviour at level-3 and results at level-4. Kirkpatrick's reaction level model investigates how the participants perceive the learning experience (21), and Kirkpatrick's learning level model identifies the knowledge and skills acquired after the training programme (17). Fresh medical graduates are expected to attain a certain level of required clinical competency after their completion of a five-year undergraduate medical course. Kirkpatrick's programme evaluation model is an excellent way to evaluate a curriculum by assessing the self-confidence of the fresh graduates regarding their learning of clinical competency. Kirkpatrick's reaction level model is the most convenient and extensively employed model worldwide to evaluate the effectiveness of a curriculum by assessing self-assessment of graduates (17, 22), at the final stage of an educational programme (23).

The self-assessment of competency is considered the basis of adult education, particularly among medical practitioners. The confidence level is an important marker of competency that reflects the ability to function competently (24). Assessment of the self-confidence level in performing the clinical procedures is one of the ways to determine the learning gained. Self-confidence reflects the ability to perform procedures competently without any supervision. Self-reported confidence level is the impact of knowledge gained through the educational process during training as well as their prior and current attitudes that ultimately lead to the final attitudinal changes. Although the influences of the practitioners' willingness to undertake procedures, accurate self-assessment and

willingness to ask for support influences the confidence level. Thus, confidence level is an important target to maintain adequate competency and performance level (25). Bandura states that students who have high rated perception, are expected to work hard and ultimately attain better scores in tests (26).

In this study, we have evaluated the self-perceptions of clinical competency of fresh medical graduates immediately after their graduation prior to entering the houseman training. We analysed their competency based on gender and marital status as well, as these factors have been found to play a role in the perceived competency of medical students (27–28). The objective of this study was to investigate the perceptions of clinical competency of fresh medical graduates using Kirkpatrick's framework model to identify the efficiency of the curriculum aimed at continuous reviewing and its development.

MATERIALS AND METHODS

Setting

The setting of this research was a private teaching medical institution in Malaysia. This cross-sectional questionnaire survey, an audit on educational development was conducted among all 50 fresh medical graduates of Widad University College (WUC) who graduated in September 2019. This survey used Kirkpatrick's reaction level model of evaluation.

Context

The WUC, established as early as December 1997 as Institute Fitra with students of accounting matriculation, was subsequently upgraded to University College Shahputra (UCSA) in March 2011 when the MBBS programme was initiated. Afterward, UCSA was re-branded as WUC in mid-2016. The MBBS programme at WUC is modelled on an integrated

curriculum with a pre-clinical phase of two years and a clinical phase comprised of three years (29). Students undergo 5-year training, with emphasis given on acquiring basic competencies, along with professional and behavioural development from years 1 to 5 through lectures, PBL, small group discussions, seminars, workshops and exposure through the community and hospital environment to real patients (29). To improve the clinical competency, students attend a clinical skill laboratory to practice clinical procedures on mannequins before performing them on actual patients. Bedside teaching, simulation and standardisation methods are also used to improve clinical competency. The curriculum is designed to ensure that the graduates are competent in performing a range of items of clinical competency, provide their services ethically with leadership qualities, and are able to work independently without any supervision.

Instrument

A standardised questionnaire containing 43 items of clinical procedures was used in this study to collect the data. The clinical competency evaluated ranged from history taking, patient examination, head injury monitoring, neonatal resuscitation, assist in operations, interpretation of chest X-ray and performing various types of medical, surgical, obstetrical and gynecological clinical procedures. The 43 clinical attributes chosen for competency assessment were based on the content of the WUC medical curriculum, as well as a review of the literature (27). The content validity of the instrument was ensured through discussions with specialists in different fields of medical education while the face validity was ensured by administering the instrument to a similar group of students of an earlier session. The fresh medical graduates were asked to rate their self-perceived confidence about the mentioned competency items using a five-point Likert scale. The scale indicates 5 = always competent, 4 = frequently competent, 3

= sometimes competent, 2 = occasionally competent and 1 = never competent. The list of 43 items of competencies in the questionnaire was arranged in alphabetical order.

Data Collection

The questionnaire was administered to the participants at the end of an official meeting immediately after graduation. Before administering the questionnaire, anonymity was ensured, the purpose of the study was clearly explained, and consent to participate was obtained. Participants were informed that the participation was voluntary and assured that participation in this study will not hamper them in any way.

Data Analysis

All the data collected were compiled and analysed using SPSS version 22. The competency levels of the respondents are presented as median scores and interquartile range (IQR) against each of the competency. Comparisons between the two groups in terms of gender and marital status were performed using non-parametric Mann-Whitney U test, as the data were not normally distributed. The significant level was $p < 0.05$.

RESULTS

Out of 50 graduates, a total of 46 returned the questionnaire, for a response rate of 92%. Table 1 reveals the distribution of gender and marital status of the respondents: 70% were female and 30% were male, while 74% were unmarried and 26% were married.

Table 2 shows the median competency scores of the graduates presented in descending order. Among 43 items of clinical competency, the highest score of 5 was obtained in taking clinical history thoughtfully; and examining a patient thoroughly. There were eight items where respondents rated competency

score of 4, including selecting relevant investigations, interpreting chest X-ray, intravenous (IV) cannula insertion, venipuncture, administrating IV infusion/drugs, wound dressing, administering per rectal medication and performing electrocardiogram (ECG). The median competency levels of the graduates in normal delivery were scored as 3.5 while another 28 competency items were scored at 3. The lowest scores were obtained in lumbar puncture, proctoscopy, amniotomy and hysteroscopy. None of the items was rated at score 1 by the participants.

Table 3 reveals the comparison of competency scores between two groups based on gender and marital status. There were no significant differences in competency between males and females except in skills number 37 where males were significantly more competent than

females in mixing and injecting drugs into IV bags. Comparison between married and unmarried groups also did not show any significant differences, except in skill number 14, where married respondents were significantly more competent than the unmarried ones in giving a subcutaneous injection.

Table 1: Gender and marital status of fresh medical graduates, $n = 46$

Variables	n	%
Gender		
Male	14	30
Female	32	70
Marital status		
Married	12	26
Unmarried	34	74

Table 2: Competency of fresh graduates showed in median and IQR, $n = 46$

No.	Competencies/ practical skills	Always competent Median (IQR)	Frequently competent Median (IQR)	Sometimes competent Median (IQR)	Occasionally competent Median (IQR)
1	Taking clinical history thoughtfully	5 (1)	–	–	–
2	Examine a patient thoroughly	5 (1)	–	–	–
3	Selecting relevant investigations	–	4 (2)	–	–
4	Interpreting chest X-ray	–	4 (2)	–	–
5	IV cannula insertion	–	4 (2)	–	–
6	Venipuncture	–	4 (2)	–	–
7	Administrating IV infusion/drugs	–	4 (1)	–	–
8	Wound dressing	–	4 (1)	–	–
9	Administering per rectal medications	–	4 (1)	–	–
10	Performing ECG	–	4 (1)	–	–
11	Normal delivery	–	–	3.5 (1)	–
12	Scrubbing for surgery	–	–	3 (2)	–

(continued on next page)

Table 2 (*continued*)

No.	Competencies/ practical skills	Always competent	Frequently competent	Sometimes competent	Occasionally competent
		Median (IQR)	Median (IQR)	Median (IQR)	Median (IQR)
13	Insertion of urinary catheter	–	–	3 (1)	–
14	Giving a subcutaneous injection	–	–	3 (1)	–
15	Removal of sutures	–	–	3 (1)	–
16	Suturing superficial wound	–	–	3 (3)	–
17	Giving an IV injection	–	–	3 (1)	–
18	Using an ophthalmoscope	–	–	3 (1)	–
19	Giving an intramuscular (IM) injection	–	–	3 (1)	–
20	Mask ventilation	–	–	3 (3)	–
21	Removing plaster of Paris (POP)	–	–	3 (2)	–
22	Applying POP	–	–	3 (1)	–
23	Inserting nasogastric tube	–	–	3 (2)	–
24	Rectal examination	–	–	3 (2)	–
25	Basic life support – Cardiopulmonary resuscitation (CPR)	–	–	3 (2)	–
26	Arterial blood taking	–	–	3 (2)	–
27	Preparing equipment for intubation	–	–	3 (2)	–
28	Manual removal of placenta	–	–	3 (2)	–
29	Using an auroscope	–	–	3 (1)	–
30	Assisting in operations	–	–	3 (1)	–
31	Incision and drainage	–	–	3 (1)	–
32	Using a pump to give drug treatment	–	–	3 (1)	–
33	Endotracheal intubation	–	–	3 (1)	–
34	Head injury monitoring	–	–	3 (1)	–
35	Cricoid's pressure	–	–	3 (1)	–
36	Neonatal resuscitation	–	–	3 (1)	–

Table 2 (*continued*)

No.	Competencies/ practical skills	Always competent Median (IQR)	Frequently competent Median (IQR)	Sometimes competent Median (IQR)	Occasionally competent Median (IQR)
37	Mixing and injecting drugs into an IV bag	–	–	3 (3)	–
38	Exchange transfusion	–	–	3 (3)	–
39	Ventous delivery	–	–	3 (1)	–
40	Lumbar puncture	–	–	–	2 (2)
41	Proctoscopy	–	–	–	2 (1)
42	Amniotomy	–	–	–	2 (2)
43	Hysteroscopy	–	–	–	2 (2)

Table 3: Comparison based on gender and marital status of fresh graduates, *n* = 46

No.	Competencies/ practical skills	Gender			Marital status		
		Female Median (IQR)	Male Median (IQR)	*p*	Married Median (IQR)	Unmarried Median (IQR)	*p*
1	Taking clinical history thoughtfully	5 (2)	5 (0)	0.29	5 (2)	5(2)	0.61
2	Examine a patient thoroughly	5 (1)	5 (0.7)	0.28	5 (1)	5(1)	0.63
3	Selecting relevant investigations	4 (2)	4 (2)	0.78	4 (2)	4(2)	0.79
4	Interpreting chest X-ray	4 (2)	5 (2)	0.35	4 (1.8)	4 (2)	0.87
5	IV cannula insertion	4 (2)	4 (2)	0.64	3.5 (2)	4(2)	0.98
6	Venipuncture	4 (2)	3.5 (1)	0.45	3 (1)	4 (2)	0.07
7	Administrating IV infusion/drugs	3.5 (1)	4 (1)	0.42	4 (2)	4 (1)	0.44
8	Wound dressing	3 (2)	4 (1)	0.61	3 (2)	4 (1)	0.38
9	Administering per rectal medications	3 (2)	2.5 (1)	0.48	3 (2)	3 (2)	0.94
10	Performing ECG	3 (3)	4 (1)	0.33	4 (2)	3 (1)	0.33
11	Normal delivery	3 (2)	3.5 (1)	0.96	3 (2)	3.5 (1)	0.35
12	Scrubbing for surgery	3 (3)	4 (2)	0.26	3(2)	4 (2)	0.86
13	Insertion of urinary catheter	3 (2)	3.5 (1)	0.85	3 (2)	3 (1)	0.52
14	Giving a sub-cutaneous injection	3 (1)	3.7 (1)	0.39	4 (1.8)	3 (1)	0.04*
15	Removal of sutures	3 (2)	4 (1)	0.51	4 (3)	3 (1)	0.50

Table 3 (*continued*)

No.	Competencies/ practical skills	Gender		p	Marital status		p
		Female	**Male**		**Married**	**Unmarried**	
		Median (IQR)	Median (IQR)		Median (IQR)	Median (IQR)	
16	Suturing superficial wound	3 (3)	3 (2)	0.53	3 (3)	3 (3)	0.85
17	Giving an IV injection	3 (2.8)	3.7 (1)	0.44	3.5 (1.8)	3 (2)	0.30
18	Using an ophthalmoscope	3 (3)	3 (0)	0.98	3 (2)	3 (1)	0.52
19	Giving an IM injection	3 (1.8)	3 (1)	0.70	3.5(1)	3 (1.3)	0.29
20	Mask ventilation	3 (2)	3.5 (2)	0.14	3 (2)	3 (3)	0.62
21	Removing POP	3 (2)	3 (1)	0.60	3 (1)	3 (1)	0.16
22	Applying POP	3 (2)	3 (1)	0.42	3 (1)	3 (1)	0.19
23	Inserting naso-gastric tube	3 (2)	3 (2)	0.77	3 (2)	3 (2)	0.82
24	Rectal examination	3 (2)	3 (0)	0.75	3 (2)	3 (2)	0.38
25	Basic life support – CPR	3 (2)	3 (1)	0.36	3 (3)	3 (1)	0.55
26	Arterial blood taking	3 (2)	3 (1)	0.40	3 (3)	3 (2)	0.91
27	Preparing equipment for intubation	2.5 (2)	3 (1)	0.08	3 (2)	3 (2)	0.21
28	Manual removal of placenta	3 (2)	3 (1)	0.97	2.5 (3)	3 (2)	0.99
29	Using an auroscope	3 (1)	3 (1)	0.79	3 (3)	3 (1)	0.28
30	Assisting in operations	3 (2)	3 (1)	0.90	3 (3)	3 (1)	0.95
31	Incision and drainage	3 (1)	3 (0)	0.21	3 (3)	3(1)	1.00
32	Using pump to give drug treatment	3 (2)	3 (0)	0.17	3 (1)	3 (1)	0.73
33	Endotracheal intubation	3 (1)	2.5 (1)	0.44	2 (2)	3 (1)	0.24
34	Head injury monitoring	3 (1.8)	3 (0.5)	0.33	3 (1.8)	3 (1)	0.87
35	Cricoid's pressure	3 (2)	2.5 (2)	0.56	2 (3)	3 (1)	0.73
36	Neonatal resuscitation	3 (2)	2 (1)	0.83	2.5 (3)	3 (1)	0.95
37	Mixing and injecting drugs into IV bag	2 (2)	3.5 (1)	0.01*	3 (3)	3 (3)	0,73
38	Exchange transfusion	2.8 (2)	3 (2.3)	0.45	3 (2.8)	3 (2.3)	0.88
39	Ventous delivery	3 (1)	2.5 (1)	0.43	3 (2)	3 (1)	0.78
40	Lumbar puncture	2 (2)	2 (1)	0.95	2.5 (3)	2 (2)	0.36
41	Proctoscopy	2 (2)	2.5 (1)	0.12	3 (1)	2 (2)	0.17
42	Amniotomy	2.5 (2)	2 (2)	0.24	1.5 (2)	2 (2)	0.34
43	Hysteroscopy	2.5 (2)	2 (1)	0.45	1.5 (2)	2 (1)	0.18

Note: *p-value is significant (< 0.05).

DISCUSSION

This present study has revealed the self-assessment reports of fresh medical graduates in terms of the necessary clinical competency in various attributes that they should achieve during their undergraduate courses. This reflects their preparedness for their future professional practice. Median competency scores in different procedures ranged from 2 to 5. The 10 clinical competencies which scored as 4 to 5 are essential in their daily activities as a competent houseman. The highest level of competency was exhibited in the art of taking clinical history thoughtfully and examining a patient thoroughly, meaning they were always competent in these two attributes. This finding is consistent with the findings in other studies as well (14, 27, 30). It is very important to become a master in taking an accurate clinical history and performing a thorough clinical examination. About 79% of patients can be diagnosed if one can take the history accurately and thoughtfully, and a further 8% can be diagnosed if one examines the patient thoroughly (31). Therefore, proper history-taking and physical examination are very important practices which are confidently and competently performed by our graduates.

The next common frequently exhibited clinical competencies included selecting relevant investigation, interpretation of chest X-rays, IV cannula insertion, venipuncture, administering IV infusion / drugs, wound dressing, administering per rectal medication and performing ECG. A previous study has shown similarity in the competency of IV cannula insertion, venipuncture and ECG (14). Competency in X-ray interpretation was found to be improved with training (32). Capability of interpretation of chest X-ray is a vital skill for the house officers in an emergency to manage the patients before being seen by the specialist for various conditions such as pneumothorax, pneumo-mediastinum, pneumo-peritoneum, etc. (32). An ECG is also an essential tool for the diagnosis of coronary heart disease (33) and house officers need to have a basic knowledge of it.

The graduates rated the competency of obstetrical procedure of normal delivery as 3.5, while competency in handling complications of delivery such as manual removal of placenta and ventouse delivery was rated 3, indicating that they are sometimes competent in those skills. Competency level in newborn resuscitation was also rated as sometimes competent, which is consistent with a study in Thailand that showed that neonatal resuscitation was the lowest scored competency among fresh graduates. Neonatal resuscitation, being a complicated procedure, is usually managed by paediatric residents or staff doctors in an emergency, which creates less opportunity for inexperienced juniors (34). CPR is another attribute of clinical competency that was rated as sometimes competent in this study. The CPR is a basic life support technique, and can be lifesaving in many emergency situations. As such, we expect the competency score to be more in this category. It is expected that medical professionals at the end of their undergraduate programme can perform proper CPR (35). A study of South African graduates showed insufficient skills in CPR (11). A previous study in Malaysia also showed that there was a lack of confidence among junior doctors in the resuscitation of patients in real situations. Faculty needs to give more emphasis on CPR and provide frequent trainings to build up confidence of graduates in this procedure (36). Our graduates need much more exposure to real life situations to be more confident and competent in this regard.

There were four items of skills which were reported as occasionally competent. This could be due to the fact that these are considered as advanced procedures, and usually the experienced seniors perform these procedures, where new graduates receive the least exposure. Again, it may raise the argument on whether all these procedures are core competency for fresh

medical graduates or more senior doctors. Indeed, a great level of competency is attained by a doctor after graduation from real life experiences by managing patients throughout their career (2, 14, 37). Therefore, it is important to determine the core clinical competency that every medical student must be able to perform competently on graduation. This present study showed that graduates did not get enough training to perform competently and confidently some of the necessary skills required. Medical students need more training through exposure of real patient as well as by the use of simulated and standardised patients. Simulation is an important way to gain competency in a safe and non-threatening learning environment, and thereby increases the students' confidences in performing the procedures (38). Standardised patients in teaching clinical skills allow students to improve their competencies (27). Educational managers especially need to consider this suggestion. We also suggest integrating the teaching of the core clinical skills in the pre-clinical curriculum for early exposure to clinical knowledge.

Comparison based on gender and marital status did not show any significant difference except only for two items. Male respondents were significantly more competent than females in mixing and injecting drugs into IV bags ($p = 0.01$), while married respondents were significantly more competent than unmarried in giving a subcutaneous injection ($p = 0.04$). Previous reports showed that gender could affect the self-confidence in performing clinical procedures, although no reasons were found (27, 39). Marital status showed no association with self-confidence in performing clinical skills (27). However, it is evidenced that marital status has a significant effect on academic performance of the students (40), which might influence them to achieve higher level of competencies.

Other factors that can affect the attainment of the competency are learners' proficiency, learning capacity, interest to perform a procedure, as well as opportunities available to practice the procedure (41). In the clinical placement, lack of facility, lack of supervision and disproportionately increased number of students' posting may hamper the students in gaining the actual competency (42). Therefore, educational managers must consider all of these factors to improve the competency of medical graduates. Curriculum development cannot be attained without faculty development (29). In WUC, a strategic faculty development planner is proposed by the medical education unit and implemented regularly on key educational issues. A regular faculty development programme by a well-trained trainer is also fundamental to enhance the teaching-learning and assessment methodologies. This is to promote a competency-based education and thereby to ensure the production of confident and competent future medical professionals (29).

The graduates in this study have not yet started the houseman training and thus have had fewer chances to practice all procedures. Therefore, we expect that they will become more competent in the future with further training and dealing with real patients, and consequently become fit to serve the real working place. A previous study on medical students in their final six months of training showed that their competency in dealing with difficult patients did not meet expectations (14). Various reasons were suspected such as fear or anxiety of committing errors on live patients or disturbing the doctor-patient relationship balance which was maintained by more proficient doctors. During undergraduate training, students may not expect to attain true proficiency in all common practical procedure (14). It is accepted that the clinical competency is acquired from experience in managing real-life patients throughout a doctor's career (2, 14).

High-quality teaching and training are central to high-quality patient care (2). Competency-based education bridges the gap between education and practice. In competency-based education, first of all, learning outcomes or competencies are identified (43) and then specific teaching and assessment methods are chosen to ensure effective learning (44). Teaching-learning is an interaction between teacher and learner to provide opportunities for learning (29). Teachers need to interact closely with students by playing a good role model and mentor for them, especially during the clinical years. Low faculty-student ratios are also needed to impart the desired knowledge, attitudes and performance changes in students (45). During faculty and curriculum development activities, identification of objectives/outcomes, selection of contents, methods of content deliveries and methods of assessment procedures of outcomes must be set aligned with each other (46–47). Assessment drives learning, while learning drives practice. Meaningful assessment methods are crucial to the implementation of competency-based medical education (48). Students who were oriented on assessment methods in clinical practice and received constructive feedback from their teachers were nearly two times more confident clinically (49). A well-structured schedule of clerkship session in a real environment is very much essential for students' learning (4).

This study involves a very small sample, conducted from only one medical school, and based only on self-claims based data without any triangulation or verification of the self-claims which are the limitations of the study. Further triangulated studies involving various medical schools and approaches with large samples are required to get more information regarding these issues. However, the findings of this study are important for further professional development. This paper not only adds knowledge to a particular medical school but also offers other medical schools at national and international levels a window to comprehensive use of competency tools for assessment of clinical competency of their fresh medical graduates.

CONCLUSION

This present study showed that out of 43 attributes of clinical competency, graduates were always competent in the art of taking clinical history thoughtfully and examine a patient thoroughly; they were frequently competent in eight attributes, sometimes competent in 29 attributes, and occasionally competent in four attributes. The graduates have yet not started the houseman-training; it is hoped that graduates' competency levels will be further improved with time during their training from the real experiences with patients. There is scope for improvement, particularly in the attributes which were rated as sometimes competent and occasionally competent. Further curriculum development needs to be done addressing the identified areas of low competencies and educational managers should give due importance in this regard. Clinical competency instruction needs to be integrated with the pre-clinical phase for early exposure. Regular faculty development programme needs to be carried out to ensure a competency-based education by bridging the gap between education and practice.

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