



Relationship between Academic Performance and Acquisition of Clinical Skills among Interns in a Government Medical College - Need for Competence Based Medical Education

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ABSTRACT

Introduction: Indian Medical Graduate (IMG) should acquire core competencies during the training period. The teaching, learning and assessment methods should be aligned in this direction. Therefore it is necessary to assess medical student's readiness to begin practice as a primary care physician.

Objective: To find the relation between academic performance and confidence of performing basic skills.

Methodology: A cross sectional study was done on intern medical students using a pre-designed semi-structured questionnaire. A list of 25 clinical skills prescribed for MBBS course as per MCI to function as a primary care physician was used.

Results: 52% of the students had an aggregate percentage of marks more than 65. More than 50% of the participants had acquired the basic skills listed except for Insertion of IUD, essential drugs management and management of an epidemic, irrespective of the academic performance. Confidence of handling medico-legal formalities was overall low among the study participants.

Conclusion: Competence based education and assessment of medical students will ensure acquisition of clinical skills and a competent primary care physician.

Keyword: Medical students, clinical competence, academic performance, teacher training

INTRODUCTION

Indian mythology says "It is only the God who can create or destroy" A doctor, by profession is concerned with birth and withholding death. Therefore in India doctor is referred next to God.¹ But nowadays those who save lives are only at risk. As per the study by Indian medical association over 75% of the doctors across the country have faced some form of violence.² Recently more than 2000 junior doctors in Mumbai, went on strike for 4 days in order to protest violence against doctors. Some of the reasons for existence of such situation in our country are that the junior doctors failing to build doctor patient relationship and the Indian medical education system which stresses on specialization over general practice.³

Internship is the phase in medical education where students are transformed to doctors. But this crucial year is suffering from lack of supervision and is dominated by the pressure of studying for entrance exams rather than acquiring skills and turning into a primary care physician. The selection of students both undergraduate and postgraduate students is through multiple choice questions rather than communication skills, humanistic attitude and performance of clinical skills. Moreover the institutions' are accredited by the respective body based on infrastructure rather than quality of medical education. As a result of the existing curriculum and the criteria for admissions to higher studies, medical students are lacking in acquiring communication and clinical skills.⁴

Change in the curriculum of medical education is the need of the hour. Medical council of India has recently proposed curriculum for Undergraduate medical education "Medical Council of India Regulations on Graduate Medical Education, 2012." The goal of undergraduate medical education programme is to create Indian Medical Graduate, who has necessary knowledge, skill and attitude to function as physician of first contact. The role of an IMG is to be A clinician, who understands and provides preventive, promotive, curative, palliative and holistic care with compassion; A leader and member of the health care team and system with capabilities to collect analyze, synthesize and communicate health data appropriately, A Communicator with patients, families, colleagues and community, A lifelong learner committed to continuous improvement of skills and knowledge and professional who is committed to excellence, is ethical, responsive and accountable to patients, community and profession.⁵

Hence the purpose of medical institutions is to educate and train medical students in preparation for the role of junior doctor now perceived as Indian Medical Graduate (IMG). The goal of learning process is to attain proficiency in three domains cognitive, affective and psychomotor skills. Good scholastic performance does not ensure the student has acquired necessary skills. The transition of medical students to doctors and theoretical knowledge to clinical practice require proficiency and expertise in clinical skills, the psychomotor domain. Since internship is a crucial phase where medical students are transformed to doctors by acquisition of these skills, it is necessary to assess medical student's readiness to begin practice as a primary care physician. MCI has already published the competency based curriculum which is expected to be rolled out from 2019.⁶

OBJECTIVE

The objective is to find the relation between aggregate marks obtained and perceived confidence of performing selected clinical skills

METHODOLOGY

A cross sectional study was conducted among the interns of a government medical college in Karnataka, India from July 2017 to September 2017. All those pursuing internship during the study period were approached and those willing to participate were included in the study.

A self-administered semi structured questionnaire was used to collect data. The questionnaire con-

sisted a list of clinical skills prescribed for MBBS course for an Indian medical graduate by MCI.⁷ A total of 100 interns participated in the study.

Data was entered in Microsoft excel. To compute the results percentages were calculated and t test for proportions was applied.

RESULTS

The study participants were divided into two groups based on their scholastic performance. Considering the aggregate percentage of all the three phases, interns were divided into those who scored more than 65% and less than or equal to 65%. After completion of a particular posting, the interns were questioned if they were confident to perform the required skills that they were supposed to acquire in respective postings.

Out of 100 participants, 72 interns had completed their postings in medicine department. Amongst these 72, 29 interns had aggregate percentage of less than 65 and 43 interns secured more than 65. Around 90% of the interns in both the groups were confident to record ECG and more than 50% in either groups were confident of interpreting and managing case of anaphylactic shock. The difference in proportion of interns who were confident to perform the above skills in both groups was not statistically significant (Table 1).

53 interns who had completed their surgery postings, were asked if they were confident to suture a lacerated wound and manage a case of trauma (ex: Head injury) in the initial stages. More than two third people in either group were confident to perform the above skills. The difference in proportion between both the groups with respect to confidence of managing trauma case was more among >65% group as compared to other but was not statistically significant (Table 1).

63 interns had finished their obstetrics and gynecology postings. More than two third of the interns in either groups were confident of doing pelvic examination, conducting a normal delivery and counseling couple for adoption of family planning services. However, only 22-30% of the interns were confident enough to insert an Intra uterine device.

More than 75% of the interns in either groups who had completed their pediatric posting were confident of managing a case of acute gastroenteritis and respiratory tract infection. The difference in proportion of interns who were confident to administer vaccine by all the three modes intramuscular, intradermal and subcutaneous in <65% group were far less than those in >65% group but was not statistically significant.(Table 1)

Table 1: Acquisition of skills after completion of postings in major clinical departments

Clinical skills acquired	Aggregate percentage of all 3 phases		P value
	<65% (%)	>65% (%)	
After completion of medicine postings (n=72)			
ECG recording	26/29 (89.6)	42/43 (97.6)	0.144
ECG interpretation	19/29 (65.5)	34/43 (79.1)	0.2
Management of acute anaphylactic shock	18/29 (62.1)	30/43 (69.7)	0.496
After completion of surgery postings (n=53)			
Suturing of lacerated wound	21/25 (84)	27/28 (96)	0.121
Managing a case of trauma	17/25 (68)	23/28 (82)	0.234
After completion of obstetrics and gynecology postings (n=63)			
Pelvic examination	26/36 (72)	20/27 (74)	0.872
Conducting normal delivery	25/36 (69.4)	22/27 (81)	0.275
IUD insertion	8/36 (22.2)	8/27 (30)	0.502
Family planning counselling	29/36 (80.5)	23/27 (85)	0.631
After completion of paediatric postings (n=55)			
Administration of vaccine(IM/ID/SC)	13/25 (52)	23/30 (76.6)	0.054
Management of acute gastroenteritis	19/25 (76)	26/30 (86.6)	0.307
Management of acute respiratory tract infection	20/25 (80)	27/30 (90)	0.293
After completion of ophthalmology postings (n=55)			
Refractive error	6/14 (42.8)	19/29 (65.5)	0.158
Tonometry	6/14 (42.8)	18/29 (62)	0.234
Syringing of eye	6/14 (42.8)	23/29 (79.3)	0.016
Removal of foreign body	10/14 (71.4)	19/29 (65.5)	0.696

Table 2: Acquisition of skills after completion of casualty / any clinical posting (N=100)

Clinical skills acquired	Aggregate percentage of all 3 phases		P value
	<65% (%)	>65% (%)	
Venipuncture	28/48 (58.3)	34/52 (65.3)	0.465
Gastric lavage	34/48 (70.8)	40/52 (88.4)	0.596
IV line	44/48 (91.6)	46/52 (76.9)	0.49
Catheter insertion	42/48 (87.5)	51/52 (98)	0.038
Ryles tube insertation	38/48 (66.6)	42/52 (80.7)	0.107
Medico legal formalities	28/48 (58.3)	35/52 (67.3)	0.352

Table 3: Acquisition of skills after completion of community medicine posting (N=52)

Clinical skills acquired	Aggregate percentage of all 3 phases		P value
	<65% (%)	>65% (%)	
Counselling HIV and tuberculosis patients	21/29 (72)	19/23 (83)	0.384
Essential drug management	47209 (14)	45139 (35)	0.075
Epidemic management	47270 (21)	45108 (30)	0.417

Amongst 43 interns who completed postings in department of ophthalmology, those who secured less than 65%, very less proportion of people were confident of estimating refractive error, performing tonometry and syringing of eye. The difference in proportion of patients in both the groups with respect to performing syringing of eye was statistically significant.(Table 1)

All the participants had either finished any one of the clinical posting or casualty and hence were assessed for some basic clinical skills. More than half of the interns in either groups were confident of performing the skills. With respect to catheter insertion the proportion of students in more than 65% group were more than those in less than 65% group and the difference was statistically significant.(Table 2) Amongst those who completed

community medicine postings very less proportion of people had confidence of managing essential drugs in hospital and handling epidemics.

DISCUSSION

The famous Blooms taxonomy of learning identified three domains of learning which are essential to enhance quality of education. The **cognitive domain** which is pertained with the mental skills and knowledge, the **affective domain** that is concerned with the emotional component and the attitude, the **psychomotor domain** enforces about the learning of skills.⁸ It is important to attain these three domains of learning, for a student to be competent at professional front. The medical council of India has listed the necessary basic skills that has

to be acquired by a medical student by the end of internship.⁷ Good academic scores doesn't guarantee that these skills have been acquired by students as the current pattern of assessment in examination is more focused on knowledge component.

In the current study, around 90% of the interns were confident to record ECG, however when it comes to interpreting the same, the proportion dropped down. A study done by Kopec G found that there was qualitative and quantitative deficiencies in teaching ECG interpretation to undergraduates.⁹ Competency of ECG interpretation did not vary among those who attended ECG classes and those who did not, but interestingly the competence was higher among those who adopted self-learning. Similarly a study done to assess the accuracy of ECG interpretation done on resident doctors in emergency department revealed that many life threatening emergencies which needed immediate attention have been missed by the residents.¹⁰ In the current study about two third of the interns had perceived confidence that they can manage a case of anaphylaxis. In a study done by Drupad H also nearly 60% of the healthcare providers had answered adrenaline as the first line of drug. However the knowledge regarding dose, route and method was more among medical students as compared to interns and nursing staff.¹¹

The confidence of performing the necessary surgical skills was good among both the groups which avoids the referral of these patients to casualty and time allotted to other serious casualties can be substantially increased. In a study the referral of patients reduced drastically from 90 to 30% after a workshop on suturing skills.¹² The confidence of managing a case of trauma was less among people who scored less than 65% may be because it needs in depth theoretical knowledge.

One of the reasons mentioned for the failure of family planning programme in India is untrained health workers and lack of experienced doctors.¹³ Where taboos already hinder the family planning services, such mistakes from health sector wouldn't be acceptable. In the current study also more than two third of the doctors are not confident of performing IUD insertion.

The proportion of people who have confidence in performing ophthalmology skills is overall less in both the groups though it is comparatively more among >65% group. This may be because interns are posted for less days in ophthalmology as compared to other major subjects. Whereas the basic skills to be obtained after casualty postings are varying both in between the groups and also amongst various types of skills since it also depends on the number of clinical postings completed and the confidence gained overall from them.

Sharma D's article quoted that India's medical education system trains doctors to work only in tertiary care set up and specialized hospitals.¹⁴ Similarly in the current study the proportion of people who had confidence in managing epidemic and maintaining essential drug list were very few.

There was difference in acquisition of skills between the average graduates and above average graduates but it was not statistically significant. Scholastic performance does not guarantee acquisition of psychomotor skills. Hence an integrated approach must be adopted both in the curriculum and assessment of medical students.

CONCLUSION

Majority of the interns had acquired all the major skills (19). Relationship between aggregate percentage and acquisition of skills is not statistically significant except for catheter insertion and syringing of eye. Certain essential skills like Insertion of IUD, essential drugs management, management of an epidemic and handling medico legal formalities are neglected. Competence based education and assessment of medical students will ensure acquisition of clinical skills and a competent primary care physician

Limitation

Acquisition of skill was as perceived by the participant, couldn't be assessed practically.

RECOMMENDATION

Teaching and assessment methods must focus on acquisition of essential skills apart from theoretical knowledge using skill laboratories. Some of the **must possess** skills like IUD insertion and handling medico legal formalities which students are lagging must be prioritized.

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