

Research Article

Self-reported training assessment of medical interns and fresh graduates of a tertiary care centre

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ABSTRACT

Background: In India internship training is considered to be a period of learning entrusted with clinical responsibilities. This study helps to know the self-reported preparedness of fresh graduates for internship as well as trained interns to be a practising primary care doctor.

Methods: Cross sectional study was done in a tertiary care teaching hospital of South India. Thirty five interns who completed training and thirty five fresh graduates entering internship were randomly recruited for the study after getting ethics committee approval. Data was collected in a structured questionnaire which assessed the confidence levels of the participants in performing various skilled activities. The feedback regarding training and suggestions were also received. The data was analysed by SPSS 16. Both the groups were considered to be equally competent and hence non parametric test for 2 independent samples Mann Whitney U, Chi square test and Fisher's exact test was done.

Results: Apart from delivering health talks in local bodies and prescribing oral contraceptives there was significant difference ($p < 0.05$) in the confidence levels of interns who completed training. Total scores of trained interns were greater than that of fresh graduates ($p < 0.001$). 97.14 % participants wanted cardiology as a compulsory area of training for internship. Suggestions for improvement include orientation classes, exact procedure demonstrations, more seminars and active involvement of interns in management of the patients.

Conclusions: Internship training is effective in this tertiary care hospital and trained interns make better doctors than fresh doctors as the theoretical knowledge gained is put into practice.

Keywords: Medical internship, Interns, Training, Fresh graduates

INTRODUCTION

Medical Internship (MI) is considered to be a period of learning. Interns are entrusted with clinical responsibilities under the supervision of medical teachers. They do not work independently but can treat patients. Only after the completion of MI they get the status of a registered medical practitioner. Hence training during internship should be effective to create good doctors who provide excellent service to the society.

The MI manual adopted in this institution puts forward certain must know areas that a doctor who completes internship needs to get trained. This study is a self-reported assessment of the trained interns and fresh graduates and this would help in creating an awareness of probable lacunae encountered during the training of interns and put forward probable measures that could be taken up to fill up the same as well as an idea on the preparedness of medical graduates for internship.

METHODS

This was a cross sectional study done in a Government Medical College of South India after getting Ethics Committee approval. Thirty five interns who had completed training from the institution and thirty five fresh graduates entering internship training after passing final MBBS degree were randomly sampled by the lot method and recruited in the study after obtaining their informed consent. They were personally met by the investigator either in the Hospital or intern's quarters and given a structured questionnaire based on which data was collected and entered in excel sheet. Interns who did their MBBS from any other Medical College were excluded from the study.

The questionnaire for the study was framed based on the must know areas in the MI manual adopted in the institution. The questionnaire explored to what degree of confidence the participants had in a range of competencies, their self-perceived learning needs, their educational and training experiences and suggestions. Questionnaire validation was done in five interns using content validation method. Twenty five questions which assessed the self-reported confidence level in performance of practical procedures following internship were ranked using likert like scale which was No-1, Not really-2, Undecided-3, Somewhat-4, and Very much-5. These ranks were considered as scores of that participant in performing each activity and thus making a maximum score of 125 (25 variables x 5).

The questionnaire also assessed their feedback on training as well as certain clinical postings and ADR (Adverse Drug Reaction) reporting and they were also given an opportunity to provide suggestions for improving the internship training.

After compiling the data, statistical analysis was done using SPSS 16 software. Both the groups were considered to be equally competent and hence non parametric test for 2 independent samples Mann Whitney U, Chi square test and Fisher's exact test was done.

RESULTS

Each group consisted of 35 participants making a total of 70. The mean age was 23.89 ± 1.029 years and there were 37 (52.9%) females and 33 (47.1%) males.

Tables 1 and 2 show the confidence in performing various skilled activities by the trained interns and fresh graduates respectively. The activities assessing the communication skills were delivering health talks at Panchayat (local governing body) level and conveying death is likely situation to the bystanders of the patients. The leadership and managerial qualities was assessed by the confidence in leading a medical team at the time of disasters, natural calamities or mass casualties.

Table 1: Self-reported scores of confidence in performing various skilled activities by trained interns.

Variables	Scores *obtained (n=35)				
	1	2	3	4	5
Confidence in giving health talk	0	1	5	20	9
Awareness of essential drugs	2	5	4	19	5
Leading a medical team in primary health center	2	8	7	10	8
Urethral catheterization	0	0	0	0	35
Ryles tube insertion	0	0	0	10	25
Interpret electrocardiogram	0	2	3	22	8
Arterial blood gas interpretation	2	4	8	15	6
Cardiac resuscitation	1	0	5	19	10
Conveying death is likely situation	0	0	0	5	30
Femoral vein puncture	0	1	0	7	27
Performing immunization	2	2	1	15	15
Performing nebulization	0	0	2	0	33
Preparation & administration - oral rehydration therapy	0	0	3	11	21
Intravenous cannulation	0	0	1	16	18
Draining superficial abscess	0	1	0	4	30
Dressing a burns patient	2	4	5	20	4
Splinting and dressing	0	1	1	10	23
Provide antenatal care	0	2	3	22	8
Conduct normal labour	1	1	3	18	12
Take Pap smear	9	2	4	10	10
Insert intrauterine contraceptive devices	8	4	11	7	5
Prescribe oral contraceptives	7	7	9	8	4
Packing epistaxis	3	4	11	13	4
Removing foreign body from ear	3	2	8	17	5
Manage chemical injury of eye	0	1	3	13	18

* = No-1, Not really-2, Undecided-3, Somewhat-4, and Very much-5

Table 2: Self-reported scores of confidence in performing various skilled activities by fresh graduates.

Variables	Scores *obtained (n=35)				
	1	2	3	4	5
Confidence in giving health talk	1	4	10	10	10
Awareness of essential drugs	1	7	14	13	0
Leading a medical team in primary health center	6	5	15	9	0
Urethral catheterization	5	15	12	1	2
Ryles tube insertion	29	4	2	0	0
Interpret electrocardiogram	5	3	12	11	4
Arterial blood gas interpretation	15	7	12	1	0
Cardiac resuscitation	10	8	15	2	0
Conveying death is likely situation	11	14	8	2	0
Femoral vein puncture	26	7	2	0	0
Performing immunization	5	16	9	4	1
Performing nebulization	6	15	11	2	1
Preparation & administration - oral rehydration therapy	0	4	11	11	9
Intravenous cannulation	3	2	9	11	10
Draining superficial abscess	10	5	15	4	1
Dressing a burns patient	24	5	5	0	1
Splinting and dressing	15	7	11	2	0
Provide antenatal care	1	5	16	10	3
Conduct normal labour	2	16	10	13	4
Take Pap smear	28	2	1	2	2
Insert intrauterine contraceptive devices	34	0	1	0	0
Prescribe oral contraceptives	10	12	8	2	3
Packing epistaxis	21	10	3	0	1
Removing foreign body from ear	20	14	1	0	0
Manage chemical injury of eye	18	6	10	1	0

* = No-1, Not really-2, Undecided-3, Somewhat-4, and Very much-5

The confidence in prescribing essential drugs and oral contraceptives rationally with an idea of their availability, cost and adverse effect; prescribing and performing immunization; preparation and administration of Oral Rehydration Therapy (ORT), interpretation of ECG (Electrocardiogram) so as to distinguish cardiac problems from non-cardiac problems, interpretation of ABG (Arterial Blood Gas) in any critically ill patients assessed their medical expertise and knowledge.

Table 3: Comparison of confidence in graduates versus trained medical interns in performing skilled activities.

Variables	Sum of ranks		P value*
	Graduates	Trained interns	
Confidence in giving health talk	1132	1353	0.169
Awareness of essential drugs	1055	1430	0.019
Leading a medical team in primary health center	1066.5	1418.5	0.033
Urethral catheterization	665	1820	<0.001
Ryles tube insertion	630	1855	<0.001
Interpret electrocardiogram	975	1510	0.001
Arterial blood gas interpretation	814.5	1670.5	<0.001
Cardiac resuscitation	814.5	1670.5	<0.001
Conveying death is likely situation	635	1850	<0.001
Femoral vein puncture	635.5	1849.5	<0.001
Performing immunization	801	1684	<0.001
Performing nebulization	663.5	1821	<0.001
Preparation & administration - oral rehydration therapy	960.5	1524.5	<0.001
Intravenous cannulation	993.5	1491.5	0.002
Draining superficial abscess	679.5	1805.5	<0.001
Dressing a burns patient	749.54	1735.5	<0.001
Splinting and dressing	664	1821	<0.001
Provide antenatal care	944	1541	<0.001
Conduct normal labour	973	1512	0.001
Take Pap smear	889	1516	<0.001
Insert intrauterine contraceptive devices	783.5	1701.5	<0.001
Prescribe oral contraceptives	1092	1393	0.069
Packing epistaxis	782	1703	<0.001
Removing foreign body from ear	725	1760	<0.001
Manage chemical injury of eye	668.5	1816.5	<0.001

*Mann Whitney U test

The confidence in performing various activities which showed professionalism and skilled expertise were also assessed. They were urethral catheterization for acute urinary retention or for surgeries; inserting Ryles tube in emergency management of poisoning or before surgery; reviving a patient with cardiac arrest by doing CPR (cardio pulmonary resuscitation); collection of blood by femoral vein puncture; performing intravenous (IV) cannulation; help a patient use nebulizer; drain superficial abscess; resuscitate burns patient; apply splints and dressings for normal and emergency conditions; providing antenatal care; conducting normal labour; take PAP smear; insert Intrauterine Contraceptive Devices (IUCD); pack nose in case of epistaxis; removal of foreign body from ear and irrigate chemical injuries of the eyes

Table 3 shows the comparison of the untrained graduates with trained interns in performing various activities. The sum of ranks for each activity was compared using the Mann Whitney U test. All the activities had a significant difference in trained medical interns with a p value of <0.05 except for the confidence in delivering a health talk at a local body meeting as in Panchayat level (p=0.169) as well as prescribing oral contraceptive pills (p=0.069).

The maximum score which each participant could attain for the 25 variables was 125. Based on the achievement of total scores they were regrouped as shown in table 4

and Mann Whitney U test done. As seen from table 4 it is evident that the participants who had completed MI attained either scores of 76-100 or 101-125 while those who were yet to do their training had either scores of 26-50 or 51-75 and only 1 participant had a score of 76-100.

Table 4: Total scores of participants.

Total score	Untrained MI (n=35)	Trained MI (n=35)
1-25=1	0	0
26-50=2	7	0
51-75=3	27	0
76-100=4	1	17
101-125=5	0	18
Sum of ranks	631	1854
P value*	<0.001	

*Mann Whitney U test

All the participants in either group knew how to report ADR. The opinion regarding making Cardiology, Neurology and Psychiatry compulsory posting during internship is shown in table 5. Majority of the participants 68 (97.14%) opined that Cardiology posting should be compulsorily included for training. 38 (54.28%) and 35 (50%) of the participants wanted to include compulsorily Neurology and Psychiatry respectively.

Table 5: Opinion on making cardiology, neurology, psychiatry postings compulsory during internship.

	Untrained MI (n=35)		Trained MI (n=35)		Test of significance	P value
	Yes	No	Yes	No		
Cardiology	33	2	35	0	Fisher's exact	0.493
Neurology	19	16	19	16	Fisher's exact	1.000
Psychiatry	16	18	19	17	Chi square	0.632

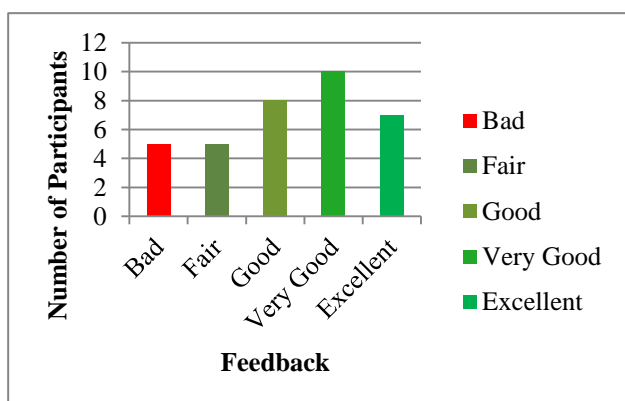


Figure 1: Intern's feedback on training in the institution.

The medical interns who completed MI rated the training in the institution as shown in Figure 1. When asked about the specialty the trained group would like to pursue in future 12 opted for career in General Medicine, 7 General Surgery, 4 Orthopaedics, 3 Pediatrics, 1 each ENT, Obstetrics and Gynaecology, Pulmonology and Psychiatry and the rest were yet to decide. 24 opined that the training during their internship did help to decide which career to pursue in the future while 11 felt that the training did not really help.

Some suggestions were put forward for the betterment of the internship training. They opined that the medical interns should be given an orientation class by the senior and experienced doctors on what they are expected to do at the commencement of internship posting in each

department rather than on a single day. They should be shown the exact procedure by demonstrations rather than being asked to learn by themselves by trial and error especially surgical procedures which require precision. There should be more seminars and presentations for the medical interns. In certain departments the interns are given only “BP recording and clerical jobs”, those departments should encourage them to actively participate in the management of the patients.

DISCUSSION

The Medical Internship (MI) also called Compulsory Rotatory Residential Internship (CRRRI) was established in the 1940s as a transition period of the newly graduated doctors who started their lifetime career.^{1,2} It is a fundamental component of the undergraduate medical education when the interns engage in an active and practice based learning that encourages identification of their learning needs.³ During the internship training they learn clinical skills, perform clinical procedures, develop good clinical judgement, and acquire communication skills relevant to patient care.⁴

As a natural evolution over time and introduction of innovative methods of adult learning MI curricula has undergone a total restructuring.⁵ Curriculum based approach that stresses demonstrated competencies and practical outcomes have been adopted which transform the core abilities required in effective practice into educationally useful elements.⁶ The changes in the delivery of healthcare have introduced newer expectations in the areas of professionalism and patient safety to facilitate quality care.⁷

Global perspective

The Institute for International Medical Education in the USA articulated the Global Minimum Essential Requirements expected in the teaching of all physicians regardless of country.⁸ These essential requirements for the MI was in tune with those developed for undergraduate curricula and supported the available pillar for the training of interns. “Global Minimum Essential Requirements is a continuum of the SPICES (student-centered, problem-based, integrated, community-based, elective and systematic) model for undergraduate education”⁹

The structure of the MI varies from country to country. In United States and Canada, the first postgraduate year serves the role of the traditional MI for nearly all postgraduate residency programs, with specific placements designated by each specialty.¹⁰ In the UK and Australia the MI is embedded within the training of junior doctors which allows trainees to decide on their future career¹¹⁻¹³ Once trainees have completed this period, they proceed to their specialty or vocational training, possibly then followed by subspecialty or advanced vocational training. In the Middle East and in

many South East Asian regions the traditional MI is conducted for a period of twelve months and is considered a prerequisite for receiving the final certificate, which precedes physicians’ next steps of either obtaining a license and beginning a medical practice or enrolling in a postgraduate training program.¹ In the middle east each medical college has developed its own MI policies and procedures.¹⁴ In India Medical Internship (MI) is considered to be a period of learning for one year.¹⁵

Preparedness of medical graduates for the intern year is one of the emphasized objectives of undergraduate medical training. Medical Internship is an important period in the life of doctors who become qualified to be registered medical practitioners after the successful completion of CRRRI. An exploding number of medical colleges have been opened in India in the last few years leading to staff deficiencies and merit devaluation which is plaguing the medical education in India.¹⁶ There exists wide intra and inter specialty variations in the intern’s clinical knowledge and skills base.⁴

This study was done in Government Medical College of South India with thirty five each of trained medical interns and untrained fresh graduates.

Comparison showed that p values were highly significant for majority of the variables suggesting that there was highly significant difference between participants who had undergone MI training as against those who were yet to start the training.

K. Singhal et al. points out that “Indian students are not part of any physician's team during the various rotations and though the principles of diagnosis and management are learned, there is little practical experience”.¹⁷ They also opined that since most exposure to in-hospital care starts during the internship year except in obstetrics the undergraduate medical education in India is lacking in doctor- patient communication skills.

A study done in Ireland which assesses the preparedness of the undergraduates for internship states that majority of fresh graduates felt ‘unprepared’ for the intern year perceiving themselves to be ‘poor’ in all areas of clinical skills assessed.¹⁸

Another study done in New Zealand¹⁹ stated that compared to final year undergraduates, trainee interns reported significantly greater competence and performance levels especially independent performance of procedural skills and clinical tasks with p<0.001 which is consistent with this study.

During the undergraduate days initially in Pharmacology classes and then during the clinical postings the students become familiar with commonly used drugs but more exposure in prescribing the essential drugs with reference to their cost availability and adverse effects occur more

during medical internship. Jaykaran et al. states that rational prescribing can be achieved by practicing evidence-based medicine and even though this is not fully practiced in India, their study suggests that rational prescribing is achievable in India.²⁰

The leadership quality and managerial functions are enhanced during the primary health centre postings where the doctor comes in contact with common man's ailments, becomes confident in leading a medical team and enhancing team spirit especially during disasters. Similarly training increases the performance and confidence levels in performing various skilled activities as the trained medical interns gain hands on training in real life situations where original patients are encountered as compared to untrained fresh graduates.

Lakshminarayanan et al. states that fresh graduates are not adequately equipped to begin providing health services for common and uncomplicated conditions in the primary healthcare setting.²¹ Since most of the departments are occupied with the undergraduate and post-graduate training program internship is not satisfactorily monitored.

The medical undergraduates during their community medicine postings are given training to give health talks at community levels and this might be the reason why either group expressed very much confidence in delivering health talks. Prescription of oral contraceptive pills is taught to medical undergraduates during their pharmacology and gynaecology classes and hence the fresh graduates were also confident in prescribing oral contraceptive pills. Since the undergraduates are trained in adverse drug reactions reporting all the participants were highly confident in reporting the same. Even though preparation of oral rehydration therapy is taught in the pharmacology classes and the administration emphasized in the paediatrics classes the fresh graduates didn't express greater confidence in the performance of the same compared to trained interns. During the undergraduate training there is specific emphasis on the labour room postings where the undergraduates participate well in the provision of care to the admitted expectant mother, assist with conduct of normal deliveries, get experience in urethral catheterization as well as intravenous cannulation yet there was a significant difference in the confidence levels in the performance of these activities compared to the trained interns.

Regarding the inclusion of cardiology and neurology majority of the participants wanted the inclusion of those two postings in MI however the choice regarding Psychiatry was 50-50. The feedback of the trained interns on the training varied from bad to excellent and majority 10 out of 35 thought that the training was very good.

A study done in Kathmandu stated that interns learned clinical skills and patient care in one year internship

programme but contribution of junior doctors and colleagues were more than teachers and clear objectives needed to be briefed before clinical and community postings.²² In this study also the trained interns gave suggestions similar to this like the need of orientation before each posting, their expectation of getting trained by the experienced teachers who would demonstrate the exact procedures which required skills and requests for more involvement in the form of seminar presentations and patient management.

Finally in the rat race for securing a postgraduate seat of their interest instead of fully submerging in the training and mastering of skills "some interns "utilize this period for preparation for Pre-PG examination."²³ Internship training demands of more dedication, higher standards of internship coaching, and adequate staffing.

Limitations of the study

Better results would have been obtained if the same participants were evaluated before and after the commencement of medical internship but due to time constraints the study had to be done with two different however equally competent groups.

CONCLUSION

Internship training is effective in this tertiary care hospital and trained interns make better doctors. During MI the theoretical knowledge gained is put into practice and is learnt by either demonstrations or self-learned by trial and error. This type of learning by doing and learning by experience moulds the skills required in doing the basic activities a doctor should be proficient in. As said "Experience is the Best teacher" and "Practice Makes Perfection", constant encounter of the young doctors with patients in real life situation where each patient becomes a different teacher, medical internship becomes one of the best periods when a medical graduate can sauté his or her skills to the maximum. Medical colleges should actively seek innovative methods, through early patient contact and skills exposure, to better prepare undergraduates for the intern year. The deficiencies identified by feedback and continuous evaluation of interns should be used to reform the undergraduate curriculum.

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