Effectiveness of Educational Interventions on Internship Training in Community Medicine in a Tertiary Care Centre in Alappuzha District of Kerala, South India; A Quasi-Experimental Study

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ABSTRACT

BACKGROUND

India has been facing various challenges in the past decade, which include outbreaks of different communicable diseases and the rising of slow pandemics of non-communicable diseases. The current COVID 19 pandemic brings to light the need to revamp the training in public health during the internship. A standardized and outcome-based approach to internship training is the need of the hour for the Indian medical graduate (IMG). The internship program in community medicine should train the Indian medical graduate to develop patient management and administrative skills to promote health care through a health facility. The training provided is not standardized or evaluated across the medical colleges. Hence, it was aimed to study the effectiveness of educational interventions on internship training during the posting at the rural training health centre (RTHC).

METHODS

A quasi-experimental study was conducted among the interns posted in the rural training health centre using a validated semi-structured questionnaire as a pre-test followed by a post-test after two weeks of training on the primary health care system. The perception of the students towards the training was assessed using the Likert 5 point scale.

RESULTS

The pre-test score was 5.30 (SD 2.105) and the post-test mean score was 9.35 (SD 2.033) [P < 0.01]. The gender-based analysis also showed significance within genders. Student perception revealed 80 % found the training useful, 90 % agreed that the guidance provided by the field staff helped them and 90 % agreed that the intervention changed their outlook towards the internship training in community medicine.

CONCLUSIONS

The study has brought a positive outlook towards giving adequate guidance to acquire knowledge and skills to interns by the active involvement of faculty. Re-thinking and re-implementation of the existing internship training in the community is the need of the hour.

KEYWORDS

Internship Training, Community Medicine, Medical Education, Kerala, GMR 2019

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BACKGROUND

Public health is emerging as a very prominent speciality that requires the technical training skills, managerial skills, scientific skills to identify outbreaks, interpret community data, as well as social and communication skills to reach the common man regarding disease transmission dynamics. The ultimate aim of the current medical education system is to bring out a competent Indian medical graduate.

The undergraduate students are trained to identify and manage common diseases and ailments during their internship in the major specialities along with community medicine. When clinical postings during internship equip them to manage various communicable diseases, it is in their training during community medicine posting that they are supposed to get the bigger picture of the same disease.

Thus, they identify this same person to be a part of the larger community, where noting the address, the number of family members, the presence of vulnerable groups in his family matters, his socioeconomic status and his social status matters. It is in this community that we see disease transmission where the chain of transmission can be broken by each one of them only if they get this "bigger" picture.

This is the message that should go with them throughout their practice as an Indian medical graduate regardless of the speciality they choose later in their career. Community medicine postings at the training health centres enables them to get hands-on training in outpatient care, basic suturing skills, field activity supervision, etc., under the guidance of the medical officer in charge. But several studies have shown the shortcomings in the field of medical education stating the need for improvement in skills and knowledge in primary health care.[1,2,3,4] India has currently the maximum number of medical colleges.[5] There is a stark difference in training provided in private and government medical colleges with a lack of standardization even among the government institutions. If we consider the training provided across various medical colleges, there is a huge difference in the training provided in government and private medical colleges depending on the infrastructure, the presence of adequate staff, and other allied peripheral health staff. Even among the government hospitals, the exposure to rural health care services varies from institution to institution, which boils down to the fact that there is a lack of standardization in the training provided even in the government setup. The internship period is the best period where students can gain practical knowledge and skills in community medicine.[6] Interns are not being given specific educational training at the periphery and all learning occurs by passive assimilation of facts got during postings which do not ensure uniformity in the training process with basically no objectives or any skill output.

Hence, the current study aims at finding out the effectiveness of an educational intervention on the internship training during their posting at the rural training health centre, under the Department of community medicine and also to assess the perceptions of the interns towards such an educational intervention in a tertiary care Government Medical College in South India.

METHODS

A quasi-experimental study was conducted as a part of an educational project for an advanced course in medical education under the Medical Council of India, among the interns posted in the community medicine department during their 2 months internship period from June 2016 to July 2016.

The study was started after getting institutional review board and Ethical Committee Clearance bearing a reference number ECR/122/Inst/KL/2013 EC/2016 dated 26.05.2016. Informed consent was taken from the interns willing to participate in the study.

A batch of 4 - 6 interns were posted in rotation at health centres for 2 weeks each during their training. The usual routine that the interns followed at the health centres during their posting included taking part in case management in the outpatient department under the supervision of medical officers, do minor wound suturing, attend to casualties during their stay postings, accompany the health care workers for outreach immunization sessions at anganwadis, schools, and sub-centres, participate in health day awareness programs and conduct health education sessions for the general public. Although this is being done in most of the medical colleges, it is not systematic and uniform; and what is observed is that interns are not involved in public-health surveillance and reporting activities at the primary care level. Therefore, considering these aspects, it was decided to involve the interns at the health centre in the following pattern.

As per rotation, they were posted initially in the urban health training centre (UHTC) and then subsequently posted at the rural health training centre (RHTC). All interns willing to participate were provided with a validated semi-structured pre-test MCQ questionnaire along with open-ended questions at the beginning of their posting at the RHTC. This acted as an assessment of the knowledge they have gained from the posting at the urban centre.

Intervention: At the RHTC, each intern was linked with a peripheral health worker for acquiring knowledge regarding National Health Programmes, immunization, field visits, and family planning program. The interns were asked to present short topics on selected areas like biomedical waste management, essential drugs, and nutritional assessment of under-five children. They were also given short classes of 20 minutes each on currently prevailing communicable diseases by the medical officer.

This was followed by practical sessions by the field health supervisors regarding the management of an outbreak of communicable diseases in the field.

After the educational intervention, they were asked to fill a post-test questionnaire at the end of their posting in the department. Student perception regarding the intervention was assessed by the Likert 5 point scale.[7]

Statistical Analysis

Each answer in the questionnaire was given a score of one for the right answer and zero for a wrong answer. The open-ended questions were given one mark as the maximum mark for a correct answer. The total score of all correct answers was 15. Depending on the median score, the performance was graded as good, average, and poor. Associations between qualitative variables were tested by chi-square and fisher's exact test. Pre-test and post-test scores were compared using the Wilcoxon sign rank test. The Likert scale was analyzed by Mann Whitney U test for the comparison of perception across gender.

RESULTS

During the two-month posting, a total of 20 interns were available for the educational intervention at the rural training health centre. The students were posted in batches of 4 - 6 for 2 weeks at the RTHC. The educational intervention was done six times during the study period. A total of 10 multiple choice questions along with 5 open-ended questions were given. The result of the analysis of individual questions has been summarized in (Table 2.)

The table depicts that the pre-test scores as compared to the post-test scores were higher and this difference was found to be statistically significant on using the Wilcoxon sign rank test in all questions except in the question addressing the vector indices and the universal immunization program (UIP) which they were well versed in after UHTC posting. Clarity regarding the vector indices shows an improvement but the difference is not statistically significant.

The overall minimum pre-test score was two and the maximum is eight, whereas the minimum and maximum post-test scores were four and twelve. Table 1 shows that there is a significant difference in the pre and post-test scores signifying the effectiveness of the educational intervention on the internship training. Since the median post-test score was 10, a score of less than 6 was taken as low performers, 6 to 10 as average performers, and more than 10 as good performers. Figure 1 shows the percentage change in interns' performance. Gender-wise analysis of data revealed that there was a significant change in the scores among the male interns (Wilcoxon sign rank test, Z = - 2.207, P-value = 0.027) and the female interns (Wilcoxon sign rank test, Z = -3.309, P-value = 0.001). (Figure no. 2 and 3)

The Likert 5 point scale was used to grade the student perception regarding the educational intervention. As seen in Figure 4, most of the interns (80 %) agreed that the training was useful, 90 % agreed that the guidance provided by the field staff helped them and 90 % agreed that the educational intervention brought a different outlook towards the internship training in community medicine.

A majority (90 %) of the interns were in favour of recommending the intervention to the subsequent batches and 90 % agreed that the intervention helped them to become more aware of the functions of the primary health centre like the preventive, promotive, and rehabilitative components.

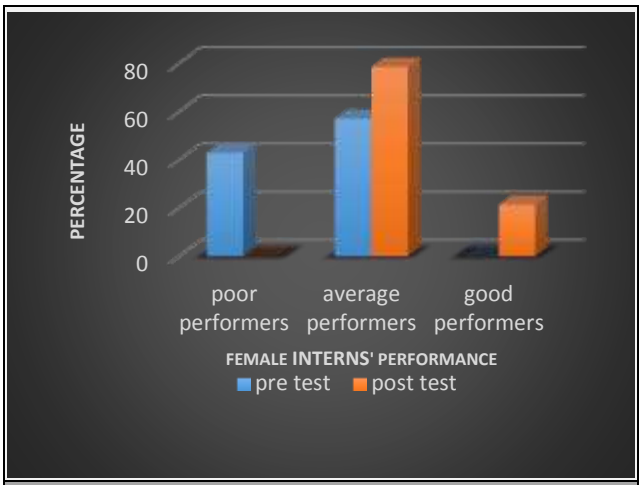

Figure 1. (Original) Performance Change among Female Interns (in Percentages)

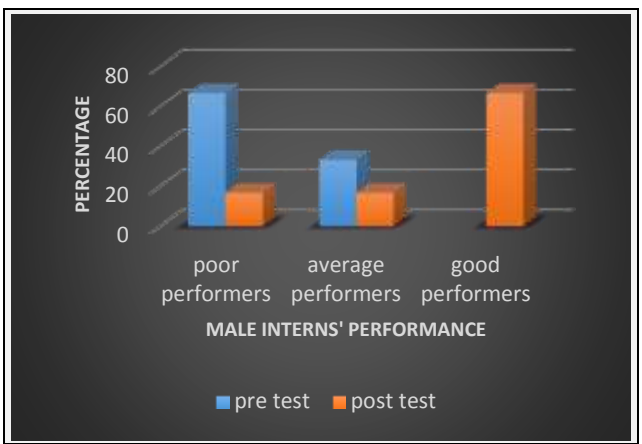

Figure 2. Performance Change among Male Interns(in Percentages) (Original)

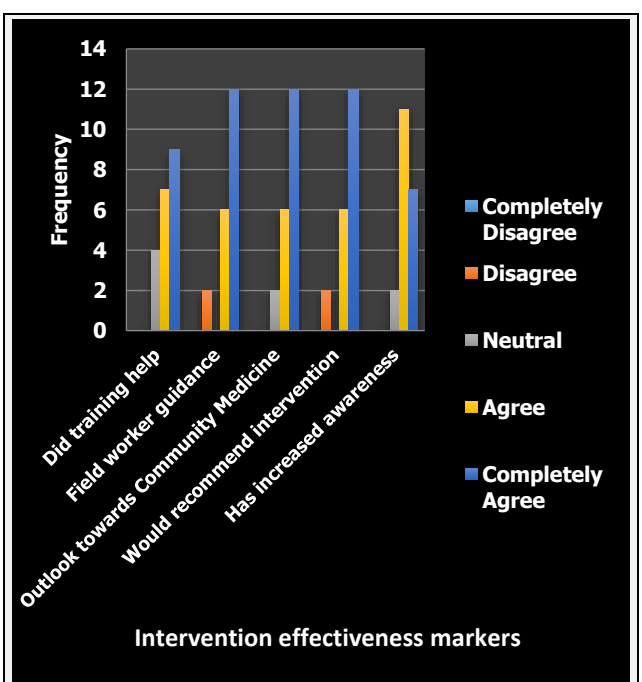

Figure 3. Student's Perception Regarding Educational Intervention (Original)

Sl. No.	Pre Test Mean Score	Standard Deviation	Post Test Mean Score	Standard Deviation	Significance
1	5.77	2.012	9.55	1.786	t= 9.480, P value=0.000

Table 1. Table Comparing the Pre and Post Test Mean Scores Scored by the Interns (Original)

Sl. No.	Question	Pre-Test Score	Post-Test Score	Significance
1	Conditions requiring super chlorination	0.20	0.65	Z = -2.714, P = 0.007*
2	Biomedical waste management	0.65	0.95	Z = -2.449, P = 0.01*
3	Timing of Vector control activities in malaria	0.45	0.45	Z = 0.00, P = 1†
4	Notifiable diseases	0.50	0.80	Z = -2.44, P = 0.01*
5	Inactivated polio vaccine	0.45	0.80	Z = -2.646 P = 0.008*
6	Integrated disease surveillance project	0.30	0.60	Z = -2.449 P = 0.014*
7	JPHN job responsibility	0.25	0.50	Z = -1.669, P = 0.096 †
8	Cold chain	0.05	0.35	Z = -2.449 P = 0.014*
9	Chest symptomatic among OP patients	0.05	0.20	Z = -1.732, P = 0.083 †
10	Treatment for uncomplicated malaria	0.05	0.60	Z = -3.317, P = 0.001*
11	Universal immunization programme	0.95	1.00	Z = -1.000, P = 0.317 †
12	Essential drugs	0.20	0.60	Z = -2.828, P = 0.005*
13	Vector indices	0.10	0.80	Z = -3.500, P = < 0.01*
14	Registers at sub centre	0.35	0.85	Z = -2.887, P = 0.004*
15	FIFO in pharmacy	0.00	0.35	Z = -2.646, P = 0.008*

Table 2. Pre-Test and Post Test Scores for Assessed Areas (Original)

*Statistically significant, †Not statistically significant

DISCUSSION

The current health system is dealing with a lot of challenges from communicable diseases in the form of vector-borne diseases, emerging and several re-emerging diseases. Even with the outbreak of pandemics like COVID 19, the Indian medical graduate has to be equipped in every manner to identify trigger events that can be early warning signs of an impending outbreak in the community. Instilling these principles in the IMG can help India break the chain of transmission at an earlier stage in the epidemic, which will help in crushing the curve of an epidemic before it strains the health system. The health system has the added challenge now as we face the consequences of epidemiological transition as well as the need to handle the double burden of rising numbers of non-communicable diseases along with infectious diseases.[8] What is observed in most pandemics, natural disasters, and other manmade calamities is that control of non-communicable diseases takes a back seat when communicable diseases rise disproportionately. Hence training the Indian medical graduate to tackle these issues becomes the prime responsibility of the medical colleges where they get trained. But studies have shown a lack of uniformity among departments in different colleges, whether it be the private or the public sector.[1] This even led Anathakrishnan N to state that the poor state of post-graduate students was because of the lack of adequate training during their internship.[5] In a study conducted by Padhyegurjar S et al. no difference was seen in the pre and post-test scores of the interns, stating that the internship training alone does not result in significant improvement in the knowledge of interns.[6] This shows that unless and until the medical fraternity takes a proactive step to change the internship pattern uniformly across the nation, Indian medical graduates will not be competent in tackling public health issues once they pass out if the current pattern follows. Though two months are allotted for community medicine in par with surgery and medicine specialities, not much active involvement of faculty is observed in most places on training medical graduates in public health. The current health challenges that India is facing have highlighted the accelerated need to look back at the internship framework in medical colleges.

Well planned and executed internship program can aid in bringing out competent Indian medical graduates. With the rolling out of the graduate medical education regulation 2019 (GMER),[9] planning and implementing a structured internship program should begin at the earliest. Nevertheless, an orientation must start from the undergraduate training which should have more field-based practical sessions rather than institution-based lectures. As per the curriculum, during undergraduate training, the maximum hours for in-class teaching were being allotted for community medicine. These sessions as per the GMER 2019 should focus on field-based and small group discussions which will see the active involvement of students in tackling exercises relevant to problem-based learning. Field programmes complemented with a well-planned and structured internship program can roll out efficient public health specialists who can knit intelligently the various national health programs for the overall benefit of the population at the grass-root level.

A pilot study conducted by Puneet et al. showed a well-perceived difference in interns' skills after a planned practical skill demonstration.[10] In the current study also, it was observed that the change in the pattern of internship training was able to instil a different perspective towards internship training in community medicine which the students would recommend for the subsequent batches. The role of the health care worker in their training process was also appreciated. Bansal R K et al. stated that internship was one of the weakest links in medical training that had to be addressed.[11] Hence addressing this weak link in medical training would require identification of gaps that would help to achieve the required competency in the Indian medical graduate.

Here, after completing two weeks of internship in the UHTC, students were well versed with the immunization schedule as they were actively involved in outreach immunization programs arranged at the centre, whereas they were minimally involved in other routine fields activities like field supervision with medical officers. All this was covered in the RHTC posting where interns got to understand the significance of various registers and the job responsibilities of the field workers. They were actively involved in weekly "Integrated disease surveillance

Programme (IDSP)" meetings and other meetings convened with the field staff.

Here they got a chance to understand the locally endemic diseases and the importance of reporting and surveillance within the health system. These aspects were well reflected in the post-test scores taken at the end of their posting at the RHTC. Reporting and surveillance are two very important aspects of public health that need to be imparted; as early warning functions of surveillance are the backbone to a strong public health system in the nation. The program monitoring function can aid in achieving the various goals set in the national health policy in terms of elimination as well as eradication of various diseases. Hence, a systematic field exposure encompassing the importance of surveillance and monitoring and flow of information across various surveillance platforms during internship will build their competency as a medical officer in charge of a health facility.

A relatively minor intervention in the posting was received with remarkable feedback from the interns. The perception of the students which revealed their acceptance of such a systematic internship program reflects the need for a change.

Such a program if supplemented with practical skill-based sessions which can be evaluated would bring about a dramatic change in the program implementation. A focused and well-charted internship training in public health enables interns to get hands-on training in surveillance and managing public health emergencies, which is efficiently being dealt with by the medical officers in charge and the field staff. Active participation from the interns posted will help improve the quality of the training that is being provided by the medical colleges. Turning the table from a posting that is solely meant as a preparatory phase for their post-graduate entrance examination to a posting that gives them the skills to monitor and tackle public health emergencies will indeed require the active participation of all in the system.

The main challenge that is usually faced is the simulation of similar situations at medical colleges in the private sector. Here, though many of the private institutions have health centres attached for training purposes, the health care system doesn't function the way it does in health centres under Government medical colleges. This will require more innovative ideas like mainstreaming at least the health centre postings in community medicine in private hospitals with that of the Government; thus strengthening the public-private partnership which is a much-needed requirement for completeness of health-related data.

CONCLUSIONS

This positive feedback from the interns shows that a rethinking and revamping of the existing internship training in community medicine keeping in mind the thrust areas for public health practice of the IMG will have a greater impact on the health care system in the future, which could be implemented by charting the outcome-based curriculum that needs to be extended to the internship training also. An innovative public-private partnership model could enable uniformity in training at the private medical colleges also. A continuous evaluation of the interns throughout their training by assessment methods as per GMR 2019 is will ensure the competency of the IMG for the health care setting both within the system and globally.

Limitations

Despite the limited sample chosen for the current study, the findings could be taken as a forerunner to a more elaborate study that can be conducted as a multi-centric study. Similarly, practical skill sessions were not included in the current study which could also be considered in the future.

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