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Engaging Universities and Ministry of Health in Evaluation of Reformed Community Medicine Training Program

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Abstract: Background: Reform of the community medicine training program (CMTP) for the undergraduate medical students is crucial for successful medical education and community development. **Objective** To evaluate the practical component of the reformed CMTP by: 1) reviewing the students' performance, 2) exploring the perspectives of the public health department (PHD) staff at Cairo and Ain-Shams Universities towards the program 3) exploring the views of the managers of the Ministry of Health (MOH) Primary Health Care (PHC) centers where medical students receive their PHC training towards the program. **Methods**: Quantitative data were obtained by reviewing the performance scores of 1492 students. Qualitative data were obtained by focus group discussions with PHD staff and MOH PHC managers. **Results**: It was found that the total students' mean score was 94.2%. About 91% of students scored >85% of the total marks. PHD staff from both universities expressed appreciation to the introduction of generic skills in the CMTP. They referred the success in management of CMTP to small-group teaching. The community-oriented and service-learning approaches also added more points to the CMTP. The MOH PHC managers acknowledged the CMTP which would contribute to preparing future physicians to have vital role in the dynamic health system.

Key words: Training in Community Medicine; Stakeholder in Medical Education; Public Health; Primary Health Care; Egypt

INTRODUCTION

Future physicians are expected not only to be skillful clinicians but also to understand and work within the community through the health system. Medical students cannot acquire these insights through theoretical learning

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about population health alone, but when it is combined with the practical experience to be able to apply preventive knowledge in real–life settings.[1-3] Therefore, the role of the public health departments (PHD) in medical schools is pivotal in upgrading and reforming the community medicine training program (CMTP). Medical schools around the world have started to look outside their walls for evidence to support the changes needed to serve the public appropriately as patterns of health and disease change.[1] However, challenges confronting PHDs in teaching medical students are related to the methods of blending population health knowledge with practical experience, as well as the paucity of opportunities and time for experimental learning of community health skills.[3] Additionally, the process by which a curriculum is designed and implemented can be executed in different ways. A traditional way is to have a vision developed by a small core team of professionals who translate that vision into the new curriculum and supervise its implementation by the training institutions. Another approach is to set up a process of interactions among the different stakeholders and the medical schools for both the design and the implementation of the curriculum. These interactions are needed to produce a balance between the training capacities of the schools and the social needs, thus motivate the teachers to implement the curriculum. The latter approach is especially relevant if health problems are becoming increasingly complex and changing rapidly. However, involving and motivating the different stakeholders is also costly and complicated in practice. Consequently achievements of many

initiatives have been limited. It is thus important to identify the strategies and activities that will stimulate and encourage the involvement of wide range of stakeholders to ensure that the final product i.e. "the training program" is appropriate to the needs of the society and the health system.[2,4,5]

In Egypt, the Supreme Council of Universities launched the initiatives of medical education reform in 2004. Each department in medical schools has its intended learning outcomes (ILOs). However, development of the curriculum with its didactic and practical contents and methodology was the responsibility of each department. The PHD at Cairo University redesigned the CMTP for undergraduate medical students and implemented the reformed program throughout the academic year 2006/2007. Redesigning the training program was based on the engagement of different stakeholders in "cooperative learning": university staff at the PHD and other faculty departments, as well as the Ministry of Health (MOH) staff in the urban and rural primary health care (PHC) facilities. After implementing the reformed CMTP during 2006/2007 and before rolling out the CMTP in the coming academic years, it was necessary to subject it to extensive evaluation by all parties engaged in this training and to exchange experience with those having similar programs to further improve the quality of the program. Thus, the aim of this study was to: 1) examine the profile of student's performance assessment; 2) explore the views towards the reformed CMTP by the PHD staff of the 2 biggest Universities in Egypt; Cairo University and Ain Shams University; as well as the managers PHC

centers of MOH where the PHC training was conducted.

MATERIAL AND METHODS

Study setting:

The study was conducted at the PHD, Faculty of Medicine, Cairo University. It is an evaluation study for reformed practical component of the CMTP applied during the academic year 2006/2007.

Educational setting at the PHD, Faculty of Medicine, Cairo University:

During the academic year 2006/2007, the PHD received 1492 undergraduate medical students. These were divided into 5 groups (about 300 students each). Each group was enrolled in the PHD training program round of 6 weeks, thus the total training rounds were 5 rounds per academic year. The PHD staff was grouped into 10 teams; each team was responsible for about 30 students. The training program included a theoretical and a practical component. The reformed practical training of the undergraduate medical students during the Community Medicine round included three major modules:

- First module included cross cutting generic skills: leadership, team work, student-staff interaction and creativeness.
- Second module included service-learning and hands-on problem solving in the rural community through seminars and visits to rural families aiming at: a) risk assessment for the visited families in the rural area, b) draft plan for problem analysis and health education messages according to needs of the visited families, c) action plans to be completed during the subsequent visit to the target families in the village.
- Third module included understanding

the PHC within the MOH system through seminars and visits to the PHC centers. The students used a "Checklist for Quality PHC services" adapted from the MOH guidelines [6,7]. It included 541 items to evaluate the performance of the PHC centre. The students were also taught to calculate the vital indices for the catchment area of the PHC and used a questionnaire form to assess clients' satisfaction in the visited PHC centre.

The practical component of the CMTP contributed to 20% of the total marks of the community medicine course. The reformed practical CMTP included a new system for the assessment of the students' performance which entails a day-to-day assessment of attendance and active participation in the workshops, seminars and field visits. The total marks of the practical program were distributed on the 3 CMTP modules, so that module 1 contributed to 20% of the total practical marks (5% for each of the leadership, team work, student-staff interaction and creativeness components); while modules 2 and 3 each contributed to 40% of the total practical marks.

Study tools and data collection:

The study used quantitative and qualitative techniques of data collection.

Quantitative data collection:

This included the review of the evaluation marks for the practical component of the CMTP assigned by the PHD staff for the 1492 students at the end of the program. The PHD Student Performance Advisory Committee provided the study team with an excel file containing the evaluation marks after removing the students' names and assigning a study number to each

student to protect student confidentiality. According to the University rules, students who achieved 85% of the total score were graded as "excellent", while those who achieved 75-<85%, 65-<75%, 60-65%, <60% were graded as "very good", "good", "acceptable" and "bad" respectively.

Qualitative data collection:

A total of 7 focus group discussions (FGD) were carried out in accordance with the recommendations of Barbour.[8] with PHD staff of Cairo University and the MOH PHC managers. Focus group guidelines were developed to assess the perspectives of the participants towards the reformed CMTP by exploring their views towards the planning, implementation, content and evaluation of the CMTP as well as the strengths and challenges of the applied program. Table 1 shows the number of FGD conducted with different categories of study participants. FGD were digitally recorded and transcribed by the moderator and note taker.

An open discussion with 7 staff members from Ain Shams University was conducted to present the reformed CMTP of Cairo University and exchange ideas about the strengths and challenges of the program.

Data Analysis Plan:

Quantitative data obtained by review of the students' performance was done using SPSS version 15. For the qualitative data obtained by FGD, the audio-files were transcribed in verbatim. The analysis followed a procedure for thematic content analysis.[9] by 1) reading all the material to obtain an overall impression; 2) identifying units of meaning, representing different aspects of the theme and coding for these; 3)

condensing and summarizing the contents of each of the coded groups to generalize descriptions and concepts about the specific theme.

Ethical considerations:

The study protocol was ethically reviewed and approved by the ethical committee at the Community Medicine Department, Faculty of Medicine, Cairo University. Verbal consent was obtained from the study participants.

RESULTS

Assessment of students' performance in the practical component of the CMTP by the PHD staff:

During the academic year 2007/2008, PHD received a total of 1492 undergraduate medical students; 737 (49.4%) were males and 505 (50.6%) were females.

Figure (1) displays the final performance assessment scores for 1492 medical students in CMTP. The majority of students (1362/1492) were graded as "Excellent".

Table (2) shows the mean performance score for the overall and for each module of the CMTP. Females showed significantly higher total scores (p=0.001). The rural health module showed the highest mean performance score with no statistically significant difference between males and females. The performance score for the generic skills was highest for the student-staff interaction. Females achieved significantly higher score in the teamwork and staff-student interaction components.

Perspectives towards CMTP:

Views towards the CMTP were obtained from all PHD staff categories at Cairo University (professors, assistant professors, lectures and instructors), some members from PHD of Ain Shams

University, as well as the MOH PHC mangers in order to abstract the evidence-based experience and learned lessons after implementing the reformed CMTP.

The following themes were abstracted from the FGD:

1. The reform initiative and the triggering action:

There was a general consensus that the reformed program was greatly successful.

One of the Cairo University staff members said:

"*Our reformed program is one of the success stories of the faculty of medicine, Cairo University*"

Study particiapnts referred this success to four overarching factors:

- The political support from the head of the department who was willing to make a difference,
- The presence of an active group of junior staff members who played a great role to make the program successful,
- The ability to identify the weaknesses of the old program with proper planning to overcome these weaknesses
- The proposed new program considered the maturity, motivation, creativeness and generic skills of the students.

PHD staff from Cairo University thought that they considered the weaknesses of the old program and were able to plan for suitable solutions that were applied in the reformed program:

"*There were no drastic changes in the old training course, but in the reformed program we had a chance to treat some of the weak points and introduce some other strong point, so the net result was*

that we were able to have a perfect training"

They considered that the previous training program was discipline-based, with no specific or clear learning objectives and no opportunity to establish strong staff-student interaction. One of the staff members had described the old training program as

"*It was a non-integrated program, where the practical sessions were just theoretical lectures. The field visits were more or less non-standardized, and were dependent on the students' ability to observe and write narrative reports that could be shared and copied by all the students.*"

Another staff member pointed to the fact that having large groups of students as was the case of the previous training had many drawbacks and hindered from achieving good results of the training,

"*The major defect in the previous training course was the working with large groups, with no enough opportunity to build staff-student interaction.*"

The comment of most of the staff members on the reformed CMTP related the success of the program to the strategic leadership and enthusiasm of the critical mass of the junior staff who worked closely with the students. In fact junior staff members received well organized capacity building workshops by the senior staff prior to the implementation of the reformed CMTP, thus junior staff was able to greatly contribute to the success of the program.

MOH PHC managers also noticed that the reformed program had changed positively:

"*The situation of the new program reflects true changes compared to the training in the previous years*."

2. Intended learning outcomes: from Theory into Action

Cairo University PHD staff emphasized the importance of revising the intended learning outcomes in community medicine. One of the staff members stated that;

"*In the training program in community medicine, our aim is to develop community-oriented physicians capable to anticipate and respond to community needs, this was the start to think of the reformed program".*

Another staff member stated that:

"*The "HOW" is considered a challenging issue. The new training program provided this "HOW" through having a deliberate participation of the staff and students in the community-based activities.*"

3. Strengths of the Design and Management of the reformed CMTP:

There was almost a general agreement of all the staff who participated in the FGD that the new training program was successful in introducing cooperative learning in the CMTP:

"*Finally we had a golden opportunity to allow our students to develop and practice leadership, teamwork, communication and problem solving while serving the rural community and understanding MOH system in PHC centers*".

PHD staff found that the design of the practical course allowed the application of leadership and teamwork through exposure of the students to group tasks and challenges. The leadership exercise allowed the students to discover their capabilities and develop self-confidence, while the teamwork allowed students to know each other and to work together towards specific objectives e.g. the design of health education messages for the rural families.

Ain Shams PHD staff was very impressed with the community-based activities in the rural area. They said:

"*This type of activity would allow for involvement of the students in real life problem-solving activities*"

All the study participants found that the rural visit was followed by critical thinking of the rural families and analysis of the health risks that the family was facing, this was followed by developing of health education messages tailored to the family needs. One staff member said:

"*Students felt responsible for the rural family they visited and tried to think how to help them, they tried to be innovative in giving them counseling and health education, they even discovered some silent health problems that need medical consultation*"

MOH PHC managers also acknowledged the reformed program and said that

"*The reformed CMTP has created a great momentum for building a better doctor who could effectively serve the community through MOH system*."

PHD staff from Cairo and Ain Shams universities also found that using the checklist for quality PHC would greatly enhance the training of PHC component in the practical training and would allow for the standardization of the education process for all the students' groups. Such approach would raise the awareness of the students about the updated MOH health system regarding the reform, family medicine and accreditation. MOH PHC managers also added that the use of the checklist to record observations of the students during their visit ensured that the visit was organized and directed towards specific objectives. They also emphasized the importance of PHC training activities in the MOH centers.

One manager said:

"In many countries all over the world, medical students have active role in service delivery. In Egypt we suffer from the education which converts the student into a tank to be filled with information without practical training".

A manager of the rural PHC unit also pointed to the benefits of the training:

"*Home visiting activities conducted by students could be invested to raise awareness of families about different MOH programs as family medicine*"

Staff from both universities praised the active contribution and support of MOH PHC managers to the successful training in the PHC centers, and the MOH PHC managers greatly appreciated their active involvement in the education process.

The Cairo University PHD staff agreed that the reformed program was also of great benefit for the junior staff. They thought that the field training added experience to the junior staff in management and field studies. Some of the instructors had conducted the practical component of their master degree thesis in the village where the students conduct their field visits. One of the staff members said that

"*Most of the staff members and students have demonstrated their capacity for leadership, creativity and educational management"*

The system used to evaluate the performance of the students in the reformed CMTP was perceived by almost all the staff as a good system. More than one staff member is involved in the evaluation of the student's performance which is done on daily basis and is task oriented.

4. Challenges of the Design and Management of the reformed CMTP:

The PHD staff from Cairo University

was especially concerned about the limited resources, whether in the form of the limited space to accommodate all the 10 groups of students, limited transportation facilities provided by the university and limited fund given to the PHD to allow for the efficient management of the training. In fact, having training activities outside the PHD necessitated the recruitment of paid manpower to facilitate the field activities e.g. the community workers in the target village. Thus the problem of sustainability of the reformed CMTP was mentioned by the Cairo University staff.

Staffs from both universities also raised the issue of the limited clinical background of the undergraduate medical students by the time they start their CMTP. One staff member said:

"*When we start talking about the maternal and child health services provided at the PHC, students feel a little bit lost, because they don't have any idea about pediatrics, obstetrics and gynecology or internal medicine*"

Cairo University PHD staff also found the lack of proper communication with the clinical departments of the hospital a challenge to complete the efficient cycle of community medicine training. One Cairo University PHD staff said:

"*Unfortunately we didn't have enough communication with clinical departments, thus students who discovered sub-clinical cases or hidden diseases were frustrated*."

Another issue that was raised is that the practical component of the CMTP contributes to only 20% of total score of the community medicine course, while the rest of the score depends only on the theoretical part of the course. Staff from both universities expressed their concerns that this might negatively impact the students' activity, some

students will just prefer to study the theoretical parts of the curriculum which is worth 80% of the total score, rather than giving much attention to the practical part of the program.

PHD staff from both universities was very impressed by the active contribution of the junior staff members, yet they raised the issue that the teaching activities are not given considerable attention in the staff promotion policy. The main activities considered in the promotion is having publications, thus this might have a negative impact on the enthusiasm of junior staff and affect their active contribution to upgrade the CMTP. They recommended giving some sort of credit to the distinguished junior staff members to encourage them to spend more time on the upgrading of the CMTP.

DISCUSSION:

The study provided an evaluation of a reformed model of CMTP. The student's performance scores that were set by the staff on daily basis throughout the CMTP could be used as a proxy for the efficiency of the training as well as for the assessment of the interaction between the PHD staff and the students while implementing the CMTP. The views of PHD staff of Cairo University towards CMTP represent self-assessment and internal evaluation, the views of PHD staff from Ain Shams University represent an external or peer-to-peer evaluation, while the views PHC managers of MOH could be considered as a mixture of internal and external evaluation due to their contribution and facilitatory role in the implementation of the PHC component of the CMTP. This comprehensive evaluation highlighted many aspects of the training program at the national and local (university) levels. The views of the PHDs in both universities and MOH PHC managers

provided critical evaluation for the CMTP according to the "logic model". This model was also embraced in different studies.[10] This "logic model" includes input (staff, students, classrooms, areas and well–defined communities for field visits, training manuals), planned activities (schedule, organized students into groups and teams, organized trainers into teams, having well designed sessions and visits plan according to the objectives and ILOs), output (conduction of the activities according to the plan set for each module), outcome (achieving ILOs for each student) and impact (modules concerned with community service learning).

The study pointed out to the complex and growing structure of medical education reform in community medicine that has to consider 4 major partners: students, university staff, MOH, and the served community. This is in addition to the training contents and methodology that should consider the intended learning outcomes (ILOs), students' background, the staff capabilities and the limited resources. This type of reform was defined by other studies as a transformation from the traditionally discipline–based curriculum into an interdisciplinary integrated approach which is patient-focused, student-centered, community-oriented, problem-based and evidence-based.[11] Improvement of such type of training increases the number of beneficiaries e.g. patients directly served by the graduated physicians, national governments, current and prospective students, and other students from different countries.[12] Additionally, it is mandatory to build up a stronger public health education agenda to serve as a

considerable model for educationalists in other disciplines.[13]

Both the university staff and MOH affirmed that the development of community-oriented physician as stated in the ILOs dictated the need for introducing problem-based learning (PBL). The method used by CMTP in PBL or service learning is highly compatible with similar training programs elsewhere.[4,14] PBL is a method of knowledge acquisition where small groups of students are guided by tutors to develop their own learning objectives based on real-world case scenarios. PBL is adopted by many medical schools that reformed their medical course from a traditional lecture-based course to integrated PBL. This PBL is community based and integrated curriculum, under the domain of *"Tomorrow's Doctors"*.[15]

The process of reforming the CMTP had countersigned new approach in the assessment of students' performance, where close observation and interaction is required. This method of training assessment had been adopted by other public health programs.[11,16] In such programs small group education is managed by complex organization and adequate guidance for standardization of the process of teaching across different education teams. The staff assessing the students give grades to each individual student reflecting the student's participation during the group discussions and field activities.[11,17]

The current study showed a significant difference in the final scores achieved by male and female students. Several factors may contribute to such difference such as age, academic achievement, brain processing, culture and creative thinking. Understanding

such differences is mandatory to develop efficient teaching strategies for both genders. In the US, Salter et al addressed the learning needs of male and female medical students. It was found that females preferred more diverse methods of information delivery encompassing a broader range of sensory modality preference.[18] Thus, educators have to realize these differences and broaden their range of presentation styles accordingly to be effective in delivering their teaching materials to all students.

One of the challenges facing the CMTP was that the marks allocated to practical training are not motivating to students to devote efforts especially in service learning. This could be solved either by increasing the marks allocated to the practical component of the program or by raising the awareness of the students about the great importance of this practical component for their future career. Introduction of cooperative learning would thus be a good solution. In this type of learning, there is encouragement of student ownership of learning. Additionally, there is shift of the learning environment from an individualistic competitive system to a cooperative non-competitive atmosphere. Application of leadership and teamwork allows for the efficient utilization of time to get the maximum benefit by enhancing one's skills. Furthermore making students selected their own groups could minimize conflicts of personality and scheduling.[19]

PHD staff raised the issue of limited resources as a major challenge for improving the quality of training. Such situation is common in developing countries and results in variations across the countries regarding the standards of

medical graduates.[20] Having large number of medical students that exceeds the capacity of faculty space for proper teaching was raised in similar studies which addressed the impact of increasing medical school class size on the quality of educational process, and demonstrated the great burden on staff, the need for more resources and the subsequent adverse impact on education[21]. However, CMTP had overcome this issue by allowing more expansion of the training sites to be outside the faculty, in PHC facilities and rural community areas, while assigning students into small groups to maximize the benefits of the education process.

Another challenge facing the CMTP that was mentioned by the PHD staff was the fact that undergraduate medical students participating in the CMTP do not have adequate clinical background that could enrich their understanding and strengthen their skills in community medicine. This is because medical students of Cairo University are engaged in the CMTP during the 4th academic year, while their clinical background starts to be enriched during the 5th and 6th academic years. Other education programs in the field of public health adopted the integrated teaching approach to solve such problem.[22] Integrated teaching dictated that improving overall public health requires that clinical staff members understand the basic domain of population-based medicine. Therefore, integrating formal public health training with formal medical training is necessary. Physicians from different specialties have to participate in public health training program. This could help bridge the gap between clinical medicine and public health by giving medical students insights into the health care delivery system, population–based

approaches to health, and the social and environmental determinants of health which might not be part of the medical school curriculum. This will help young physicians to learn how to improve public health. This idea was also raised by MOH PHC managers who acknowledged the CMTP components related to the use of the checklist for quality PHC services as a proxy to learn the standards of the quality PHC services in MOH facilities, and exposure of students to families during home visits in the rural areas. Chamberlain et al considered that future physicians will be most effective if they have the skills to collaborate effectively with the public health sector to address the health challenges at the level of the population.[23]

PHD staff of both Cairo and Ain Shams Universities greatly appreciated the efforts done by all the staff members especially the juniors who still need to be promoted, but they were concerned by the fact that the teaching efforts of the staff were not adequately evaluated during their promotion in the university career. It was thus recommended to give considerable attention to the teaching activities in the staff members' portfolio during career promotion. There should be clear standards to evaluate the depth, breadth, quality, and impact of educational activities. Therefore, Chandran et al sought to develop a practical analysis tool for evaluation of educator portfolios to build sound and fair foundation for the advancement of medical educators. Their hard work to shape the character and quality of future physicians deserve to be adequately rewarded**.** Promotions and salaries would not be the mere reward of such type of evaluation, but the recruitment and retention of high quality, energetic educators to teach the next generation

of physicians would be the true reward [16].

CONCLUSION

Organizational continuity in supporting the CMTP is essential to build generations of junior staff and students who are capable to achieve the ILOs. Cooperative teaching with inter-disciplinary stakeholders and cooperative learning through small-group teaching could help in achieving ILOs. PBL and research projects that depend on generic skills like leadership, teamwork and creativeness could be effectively incorporated as a teaching strategy of undergraduate medical education. Such educational interventions may therefore face some challenges related to motivation of the staff and the students who have so far been working in a traditional reward system that acknowledges individual accomplishments in competitive environment.

This study highlighted only the perspectives of the different stakeholders involved in the development and management of the reformed CMTP. It is recommended to explore the views and perspectives of the students who received this training to obtain a comprehensive evaluation from all partners involved in the reformed CMTP.

In general, the reformed CMTP was found to be successful and it is recommended to continue using the reformed program for the coming years.

Conflicts of interest: None declared.

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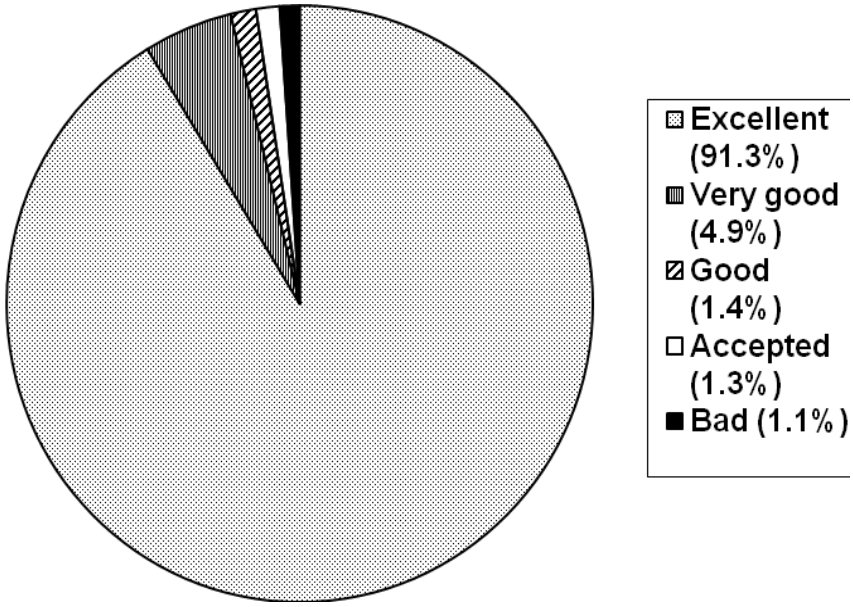

Figure (1) Percent distribution of the undergraduate medical students by their performance score in the practical component of the reformed community medicine training program

Table 1: Number of FGD with different categories of study participants:

Number of FGD	Study Participants	
1	PHD Staff from Cairo University	6 Senior professors
1		9 Junior professors
1		7 Assistant Professors
1		7 Lecturers
1		8 Senior Instructors
2		10 Junior Instructors
1	5 MOH PHC Managers from 5 PHC centers	

Table (2) The Mean Performance Scores achieved by students in the practical component of the CMTP during the academic year 2006/2007

Assessment item	Total	Males	Females	P value
	Mean ± SD	Mean ± SD	Mean ± SD	
Generic skills	92.5 ± 15.8	91.9 ± 17.6	93.6 ± 13	**0.04**
Leadership	92.8 ± 17.1	92.9 ± 17.6	93.3 ± 15.7	0.59
Teamwork	92.7 ± 18.9	91.6 ± 21.4	94.0 ± 15.2	**0.01**
Staff-Students Interaction	93.8 ± 17.5	92.9 ± 19.5	94.9 ± 14.4	**0.02**
Creativeness	90.9 ± 19.9	90.3 ± 22.0	92.1 ± 16.9	0.08
Rural Module	94 ± 14.6	90.4 ± 18.9	89.1 ± 14.3	0.16
PHC module	89.2 ± 17.4	92.8 ± 16.6	95.6 ± 10.3	**<0.001**
Total score	94.2 ± 9.9	93.5 ± 11.5	95.2 ± 7.6	**0.001**

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