

The Role of Health Care Apprentice Program on the Level of Medical Students' Knowledge and Skills

تعیین دور دوره‌ی تعلیمات‌الصحه‌ی في مستوى المعرفة و المهاره عند الطلاب الطب

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Background: According to the important role of Health Care Apprentice Program on medical students' performance, especially in relation with Social Accountability of Medical Education, it is attempted to assess efficacy of Health Care Apprentice Program on the level of medical students' knowledge and skills in the context of Primary Health Care at Babol University of Medical Sciences

Methods: In this interventional study, the level of medical students' theoretical and practical knowledge was evaluated in the context of primary health care before and after Health Care Apprentice Program. The study population includes 80 medical students attending two consecutive semesters that were introduced to Department of Social Medicine. The data were collected via a questionnaire designed by the researcher including 38 questions in the following fields: health education, controlling communicable and indigenous diseases, vaccination, maternal and child health, health food, environmental sanitation, safe drinking water supply, and occupational health.

Results: students' mean score was 2.1 ± 2.4 and 26.7 ± 5.3 in pre-test and post-test, respectively ($p < 0.01$). In post-test, the female students' mean score was 27.5 ± 5.3 , and the male students were 25.7 ± 5.2 . Among male students, average rating of practical skills in sound level measurement and measuring chlorine in water was 86.3 & 81.3% which was higher than female students (64.3 & 75.7%). However, the female students' skills in communication and health systems management were slightly higher than male students.

Conclusions: The influence of Health Care Apprentice Program on increasing the level of medical students' knowledge and skill in the context of primary health care was noteworthy. However, it appears that emphasis on increasing practical skills is essential due to future professional needs of medical graduates.

Keywords: Medical Education; Health Care Apprentice Program; Knowledge; Skill; Primary Health Care

نقش آموزش های دوره کارآموزی بهداشت بر میزان آگاهی و مهارت دانشجویان پزشکی

سابقه و هدف: نظر به نقش مهم دوره های آموزشی کارآموزی و کارورزی بهداشت بر عملکرد دانشجویان پزشکی بویژه با توجه به مقوله ای تحت عنوان آموزش علوم پزشکی پاسخگو، بر آن شدیم که به ارزیابی اثربخشی دوره کارآموزی بهداشت بر میزان آگاهی و مهارت دانشجویان پزشکی دانشگاه علوم پزشکی بابل در زمینه مراقبت های بهداشتی اولیه بپردازیم.

روش ها: در یک مطالعه مداخله ای، میزان آگاهی های نظری و عملی دانشجویان پزشکی در زمینه مراقبت های بهداشتی اولیه در قبل و بعد از انجام دوره کارآموزی بهداشت مورد بررسی قرار گرفت. جمعیت مورد مطالعه شامل کلیه دانشجویان پزشکی معرفی شده به گروه پزشکی اجتماعی طی دو نیمسال تحصیلی متوالی (۸۰ نفر) بوده است. جمع آوری اطلاعات بر اساس فرمی محقق ساخته که دارای ۳۸ سوال در زمینه آموزش بهداشت، کنترل بیماری های واگیر و بومی، واکسیناسیون، بهداشت مادر و کودک، بهداشت مواد غذایی، بهسازی محیط و تامین آب آشامیدنی سالم و بهداشت حرفه ای بود، انجام گردید.

یافته ها: میانگین نمره دانشجویان در پیش آزمون 2.1 ± 2.4 و در پس آزمون 26.7 ± 5.3 بود ($P < 0.01$). میانگین نمره دانشجویان دختر در پس آزمون 27.5 ± 5.3 و میانگین نمره دانشجویان پسر 25.7 ± 5.2 بوده است. میانگین امتیاز مهارت های عملی در زمینه سداسنجی در محیط و کلر سنجی آب توسط دانشجویان مذکر (86.3% و 81.3% درصد) بیشتر از دانشجویان مونث (64.3% و 75.7% درصد) و میزان مهارت دانشجویان دختر در زمینه مهارت های ارتباطی و مدیریت سیستم های بهداشتی اندکی بیشتر از دانشجویان پسر بوده است.

نتیجه گیری: تاثیر آموزش های دوره کارآموزی بهداشت بر افزایش میزان آگاهی و مهارت دانشجویان رشته پزشکی در زمینه مراقبت های بهداشتی اولیه قابل ملاحظه بوده است. اما بنظر می رسد باتوجه به نوع نیازهای شغلی آینده فارغ التحصیلان پزشکی، تاکید بر افزایش مهارت های عملی لازم است.

واژه های کلیدی: آموزش پزشکی، کارآموزی بهداشت، آگاهی، مهارت، مراقبت های بهداشتی اولیه

المعرف: نظرا لأهمية دور الدورات التعلیمیة لدى طلاب الطب على مستوى ادائهم و بالأخص تحت عنوان التعلیم الطبى الجیب، سعی هذه الدراسة الى تعیین دور دورة التعلیمات الصحه في مستوى المعرفة و المهاره عند طلاب الطب في جامعه بابل للعلوم الطبیه في مجال المراقبات الصحه الأولیه.

الطریقة: فی هذه الدراسة التي تمت بشكل مداخله تم تعیین مستوى المعرفة النظرية و العملية عند طلاب الطب في مجال المراقبات الصحه الأولیه قبل و بعد اجراء الدوره التعلیمیة الصحه. المجموعه التي تم اجراء الدراسة علیها هی جمیع الطلاب الذین تم اعلان اسمائهم من قبل الجامعة لدوره التعلیم الصحی خلال فصلین دراسیین متوالیین (۸۰ طالب). تم تجميع المعلومات عبر استمارات محققه و تحتوي على ۳۸ سوال في المجالات التاليه: ۱- التعلیم الصحی، ۲- لجم الامراض المعدیه و الاصلیه، ۳- التنظيم، ۴- صحه الام و الطفل، ۵- صحه المواد الغذایه، ۶- تحسین البیئه، ۷- تأمين المیاه الصالحه للشرب، ۸- الصحه الحرفیه.

النتائج: كان معدل علامه الطلاب قبل الاختبار 2.1 ± 2.4 و بعده 26.7 ± 5.3 ($P < 0.01$). و اما معدل علامه الطلاب الإناث كان قبل الاختبار 27.5 ± 5.3 و الذكور 25.7 ± 5.2 . إن معدل العلامات في المهارات العملية في مجال تعیین مستوى التلوث الصوتی في محیط العمل و معرفة مستوى الكلر في الماء عند الطلاب الذكور كان (86.3% ، 81.3%) أكثر من الطلاب الإناث (64.3% ، 75.7%) و مستوى مهارات الإناث في مجالات المهارات الإرتباطیه و ادارة المجالات الصحه كان اعلى بشكل مختصر من الطلاب الذكور.

الاستنتاج: إن تأثير دور دورة التعلیمات الصحه في مستوى المعرفة و المهاره عند طلاب الطب في مجال المراقبات الصحه الأولیه كان ملحوظ بشكل بارز. و نتج بالتاكيد على رفع مستوى المهارات عند طلاب الطب بشكل متناسب مع الاحتياجات الحرفیه في المستقبل.

الكلمات الرئيسية: التعلیم الطبى، الدوره التعلیمیة الصحه، المعرفة، المهاره، المراقبات الصحه الأولیه.

میڈیکل طلباء پر حفظان صحت کے پروگراموں کے مفید اثرات.

بیگ گراؤنڈ: میڈیکل طلباء کے اپرینٹس شپ کی افادیت کے پیش نظر اور انہیں ذمہ دار ڈاکٹر بنانے کی غرض سے یہ تحقیق انجام دی گئی ہے۔ اس کامقصد میڈیکل طلباء پر اپرینٹس شپ کے مفید اثرات کا جائزہ لینا ہے۔ یہ تحقیق بابل یونیورسٹی آف میڈیکل سائنس میں انجام پائی ہے۔

روش: یہ ایک عارضی تحقیق ہے جس میں اپرینٹس شپ سے پہلے اور بعد میں ابتدائی طبی سہولتوں کے سلسلے میں طلباء کی صلاحیتوں کا جائزہ لیا گیا۔ اس تحقیق میں اسی طلباء شریک تھے۔ ہر میڈیکل طالب علم کو اڑتیس سوالوں پر مبنی سوالنامہ دیا گیا تھا جس میں صحت عامہ، مقامی اور متعدد بیماریوں سے نمٹنے کے طریقے، ویکسی نیشن، زچہ بچہ کی حفظان صحت کے اصول، غذائی اشیاء کی نگہداشت، اسپتالوں اور طبی مراکز کی صفائی ستھرائی اور پینے کے پانی کی صفائی اور مختلف پیشوں میں حفظان صحت کے بارے میں سوالات پوچھے گئے تھے۔

نتیجے: ٹسٹ کے بعد طلباء کی کارکردگی بہتر رہی ہے اور طالبات نے بھی بہتر کارکردگی کا ثبوت دیا ہے۔

سفارش: چونکہ اپرینٹس شپ کی کلاسز سے میڈیکل طلباء کی آگہی میں اضافہ ہوتا ہے لہذا وہ آچھے ڈاکٹر بن سکتے ہیں اسی وجہ سے مستقل میں فارغ التحصیل ہونے والے میڈیکل طلباء کی ضرورتوں کو دیکھتے ہوئے یہ کورس مفید واقع ہوتے ہیں۔ ان پر توجہ دی جانی چاہیے۔

کلیدی الفاظ: اپرینٹس شپ، آگہی، مہارت، میڈیکل خدمات.

INTRODUCTION

Ministry of Health and Medical Education is in charge of providing, maintaining and promoting public health. In order to achieve such a goal, qualified workforce is required that are acquainted with social needs. Recently, authorities have paid more attention to Social Accountability of Medical Education and Community-oriented Medical Education (1-4). Prior experiences represent that only a small proportion of people demand hospital services and particularly specialized medical services while a considerable proportion of people's health-medical needs are provided by Primary Health Care (PHC) (5-6). The most crucial measures in PHC are health education, applying methods of food storage and preservation, providing sufficient safe drinking water, environmental sanitation, maternal and child health, family planning, immunization, occupational health services, oral hygiene, and etc.

Medicine is more considered as an art rather than a science. In addition to gaining science as a priority, a doctor should have various skills in observation and using his/her senses, also the ability to analyze theories and compare them with the patient condition. Moreover, doctors should learn practical skills, time management, communication skills, and as the country medical education stakeholders want, they should have the capability to manage health and hygiene of health centers (7-10).

Accordingly, medical students attend one-month Health Care Apprentice Program in order to gain required knowledge and skills to perform the last task as well as becoming capable to cover health and hygiene needs of the society. Hitherto, limited studies have been conducted on the mentioned programs. For instance, Ghadimi et al (2014) study showed that some issues have become more important, according to the current condition of the society such as occupational health, mental health and elders health (11).

Since Health Care Apprentice Programs have significant impact on doctors who are the stakeholders of health in society or in other words who provide the main health and hygiene of the people, we attempted to assess the influence of theoretical and practical lessons of one of these courses (Health Care Apprentice Program) on the level of medical students' knowledge and skill in the context of primary health care at Babol University of Medical Sciences.

METHODS

In this interventional study, level of theoretical and practical knowledge of medical students of Babol University of Medical Sciences about primary health care was evaluated before and after the program. The study population was 80 students including all students referred to Department of Social Medicine in two consecutive semesters. The inclusion criterion was the students who were introduced to Department of Social Medicine to attend HealthCare Apprentice Program and the exclusion criterion was the students who have failed or attended the course before.

The data was collected via a questionnaire designed by the researcher, including 38 questions about primary health care such as health education, controlling communicable and

indigenous diseases, vaccination, maternal and child health, health food and nutrition quality improvement, environmental sanitation, providing safe drinking water, and occupational health. In order to assess students' awareness in this section, each correct reply had 1 score. Face validity and content validity were developed towards six faculty members of Social Medicine Department.

Objective Structured Clinical Exams-OSCE was used by faculty members of Social Medicine Department to determine students' skill in the following subjects: vaccination, measuring vital horoscope and health indicators, completing family file and extracting data, sound level measurement and measuring chlorine in water. The data was analyzed by SPSS (ver.16); moreover, descriptive statistics indicators, t-test and paired t-test were conducted. The present research is confirmed to be conducted by the permission of University Ethics Committee.

RESULTS

The mean of students' knowledge was 2.1 ± 2.37 in pre-test before attending the training Social Medicine Department. However, their mean score increased after they participated in one-month training course to 26.7 ± 5.31 as the results of post-test show ($p < 0.01$). The average of post education scores were 27.5 ± 5.3 in females and 25.7 ± 5.2 in males with a little difference between them, however, t-test did not present any significant difference between the two groups. Attending Health Care Apprentice Program, the data showed that students' knowledge has enhanced significantly (at least 71.4 and at most 10400), on average 20 times more.

Before attending the training course, the least knowledge of students was about vital horoscope and its indicators and the highest level of knowledge was about health system structure and parts of primary health care. However, when the students took the course, as presented in diagram 1, their knowledge developed in food health highly; while, the least level of knowledge was for vital horoscope and measurement of extractive indicators.

In diagram 2, the mean of empowerment and skill acquisition among medical students is presented so that they can conduct some activities including how to extract information and health rates, how to measure chlorine in drinking water and conduct measuring level of sound. As the results present, the mean of skill development among all of the students is more than 60 percent. Although levels of development in different issues were rather similar for both male and female students, male students' average score was higher in some practical skills such as sound level measurement and water chlorine (86.3 & 81.3, respectively). In Contrast, the female students' skills was higher than the male in communication and health system management however there was no statistically significant difference.

DISCUSSION

An absolute necessity to continue and develop an organization or educational environment like universities is to assess and reform students and educational programs in different way (12). Therefore, respecting practitioners of health care apprentice program at medical faculty, the

current study assess the students' knowledge and skill about some required skills that provide public health and hygiene and also indirectly assess the performance of health training team in health care apprentice program and social medicine. According to the results, the impact of apprentice programs on the medical students' skill and knowledge development was fairly considerable. In so far as, in the pre-test the level was very low and near to zero while upgraded to 60 percent after education ($p > 0.05$). Consequently, not only the trainings are efficient in transferring concepts and skills to medical students, but also the faculty member and involved

training experts have had a good performance.

It should be mentioned that the achievement was considerable in some areas like food health and health system management; while, in some other areas like extracting date from vital horoscope there were some shortages to reach the desired educational results. In this regard, it is probable that the students' performance was better in the mentioned items due to gaining some information during previous courses, while vital horoscope was a totally new subject to them .

Recently, Social Accountability of Medical Education and

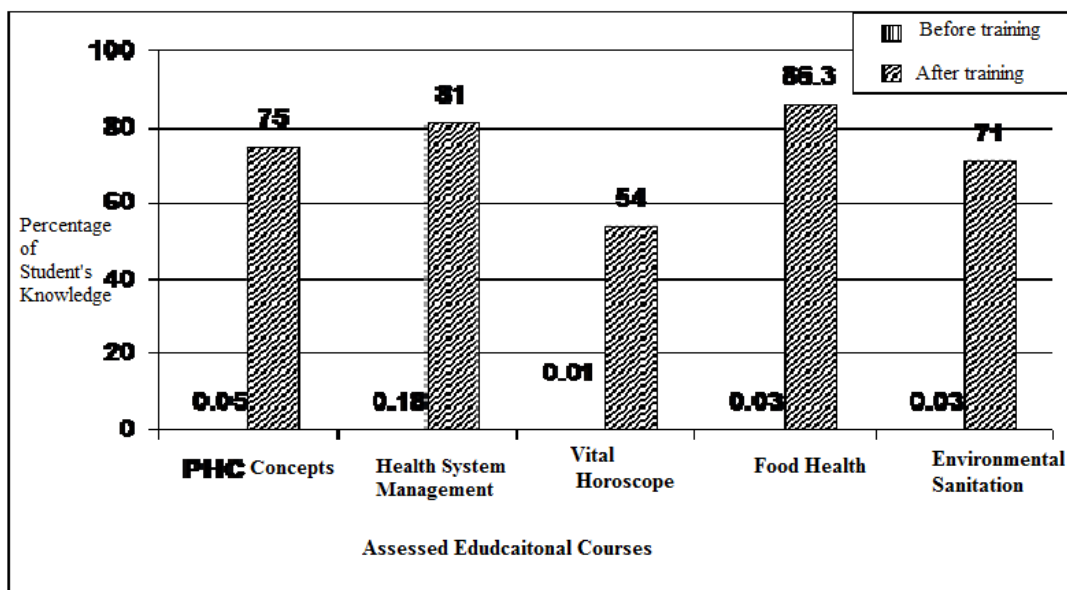


Diagram 1. Comparing medical students' knowledge level of primary health care who attended Health Care Apprentice Program (before and after training)

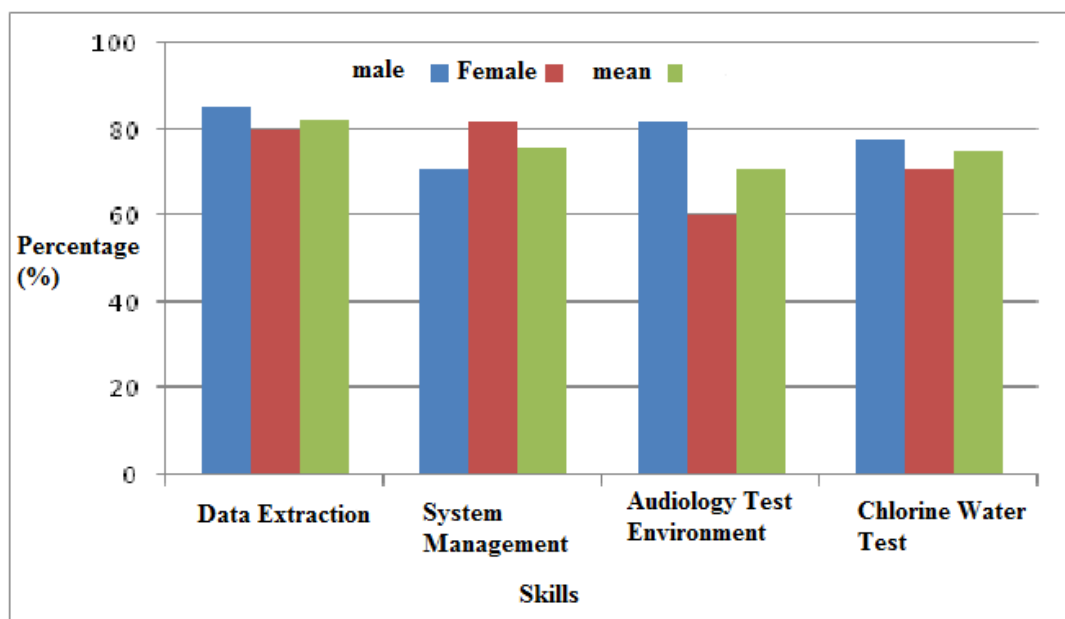


Diagram 2. The percentage of skill development among medical students attending health care apprentice program in the context of primary health care

Community-oriented Medical Education have become in the center of attention (1-4). Therefore, based on this approach, there should be more concentration on the quality and quantity of educational programs, health care apprentice program and social medicine. Undoubtedly, attending health and social medicine courses is not sufficient. Other experts have mentioned and highlighted this issue, as well (11, 13-14)

As the results in relation with gender distribution present, the female students provided better replies to questions about health knowledge than the males. However, the mean score of females' practical knowledge and skills was lower than males. Other researchers have reported similar results, as well. For instance, Abaszadeh and Yordkhani (2009) state that there is significant difference between male and female students in analyzing and comparing life skills (15). In Jafari's study (2014), there was difference between the two genders in learning neurology (16).

Reviewing and reforming educational methods and developing

practical education are important recommendations of the present study. Since a great proportion of medical graduate services are practical and they require having sufficient skills to provide services (17).

It should be mentioned that the present study had the following strengths: 1. Special emphasis on the assessment of practical education condition and required skills among medical students in the context of primary health care, and 2. Acceptable size of samples. The limitation of the study was that it did not analyze all educational areas during health care apprentice program .

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Conflict of Interest: The authors declare that they have no conflict of interests.

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