

Investigating the Compliance of Emergency Medicine Technician Curriculum with Job Requirements from the Viewpoint of the Workers at Mashhad University of Medical Sciences in 2015

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Introduction: Due to some rapid changes in medical knowledge, it is recommended to revise the curriculum of the health allied disciplines periodically. The workers' viewpoints about the compliance of the curriculum with their actual needs may be one of the valuable sources for the future revisions. This study is conducted to attain the medical emergency workers' viewpoints about their attained qualifications in the university to do their jobs in Mashhad in 2015.

Methods: This cross-sectional study is carried on 89 medical emergency workers at Mashhad University of Medical Sciences. Data gathered from a questionnaire that its validity and reliability was approved before administering it and then analyzed using SPSS Ver. 11.5.

Results: Of the participants, 52.3% had an associate degree and the remained had BSc. (47.7%). Most of the participants agreed that the "specific theoretical courses" had a positive impact on their competencies, strongly. Also, the "practical courses" impact on their job competencies were rated as 3.42 ± 0.75 (of 5) by the associate degree holders and 3.56 ± 0.83 by the BSc. degree ones. Of the participants, more than 65% agreed that the curriculum need a revision.

Conclusion: Although most of the participants agreed that the current curriculums were partially compliant with their job needs, some parts of the curriculum should be revised to prepare the graduates for their actual job needs. Many of them reported that they had felt some degrees of stress in the emergency situations due to lack of knowledge and practical competencies.

Keywords: curriculum, emergency medicine workers, need, job duties

مطالعه‌ی دیدگاه‌های کارکنان خدمات اورژانس پزشکی در مورد تطابق برنامه‌های آموزشی با نیازهای شغلی در سال ۱۳۹۴

توصیف: نظراً للتغيرات المتسارعة في علم الطب يوصون الأخصائيين في هذا المجال في تجديد البرامج التعليمية المرتبطة بوضوح الصحة بشكل متناوب. إن رؤى العاملين في مهنة معينة في خصوص تطابق البرنامج التعليمي مع إحتياجاتهم الواقعية تكون مصدرًا لاساليب تدوين البرنامج التعليمي. تمت هذه الدراسة بهدف الإطلاع على آراء العاملين في الإسعافات الطبية في مجال القابليات التي قد حصلوا عليها في الجامعة تجاه أداء عملهم. في جامعة مشهد للعلوم الطبية في عام ۱۳۹۴ **أولوب العمل:** في هذه الدراسة المقطعية إشتراك ۸۹ شخص من العاملين في الإسعافات الطبية. في مراكز الإسعاف التابعة لجامعة مشهد للعلوم الطبية. أدوات تجسيم المعلومات كانت عبارة عن إستمارات مؤيدة احصائي وتم تحليل النتائج بواسطة برنامج SPSS.

النتائج: ۴۶٪ شخص (۵۲.۳٪) من المشاركين في هذا الدراسة كانوا مختصين. ۴۲٪ (۴۷.۷٪) كانوا من المتخصصين. أشارت النتائج إلى أن النقطة التالية وفي " مستوى استخدام الدروس النظرية الإختصاصية في مجال ابراز الوظائف المهنية " و من خلال رؤية المشتركين في الدراسة كانت أعلى من الحد المتوسط و حتى بمستوى عالي و عالي جدا. إن معدل علامة الإئلة المرتبطة باستخدام الدورات التعليمية في ابراز الوظائف العرفية عند المختصين 3.42 ± 0.75 و عند المتخصصين 3.56 ± 0.83 و لم يكن هذا الإختلاف ذو قيمة بين الفريقين. و أيضا أشارت النتائج إلى لزوم تغيير البرنامج التعليمي بناء على رؤية المختصين 65% من المتخصصين مرتفعة و مرتفعة جدا.

الإستنتاج: أشارت نتائج هذه الدراسة إلى أن برغم من أن هناك تطابق كبير بين البرنامج الدراسة في مجال الإسعاف الطبي و الحاجيات المهنية لكن يجب ايجاد تغييرات في بعض الامور. و أيضا عدم كسب المهارات الكافية حين الدراسة قد تكون سببا للتوتر في اداء العمل.

الكلمات المفتاح: البرنامج تعليمي. العاملين في مجال الإسعاف الطبي. الحاجة. الوظائف المهنية

بررسی تطابق دروس رشته فوریتهای پزشکی با نیازهای شغلی از دید شاغلین این حرفه در دانشگاه علوم پزشکی مشهد در سال ۱۳۹۴

زمینه: با توجه به تغییرات سریع در دانش پزشکی، صاحب نظران توصیه می کنند که برنامه های آموزشی رشته های مرتبط با سلامت باید به صورت متناوب بازرسی شود. دیدگاه‌های کارکنان یک حرفه در خصوص تطابق برنامه آموزشی با نیازهای واقعی آنان می تواند منبعی با ارزش برای چنین بازبینی‌هایی در آینده باشد. این مطالعه با هدف اطلاع از نظرات کارکنان فوریتهای پزشکی در مورد قابلیتهایی که در دانشگاه برای انجام شغلشان کسب کرده اند، در دانشگاه علوم پزشکی مشهد در سال ۱۳۹۴ انجام شده است.

روش کار: این مطالعه مقطعی بر روی ۸۹ تن از جامعه شاغلین حرفه فوریتهای پزشکی شاغل در مراکز اورژانس تابعه دانشگاه علوم پزشکی مشهد انجام شد. ابزار گرد آوری اطلاعات پرسشنامه محقق ساخته بود که روایی و پایایی آن مورد تأیید قرار گرفت. پرسشنامه توسط افراد نمونه تکمیل گردید و نتایج با استفاده از نرم افزار SPSS مورد تجزیه و تحلیل قرار گرفت.

یافته ها: ۴۶ نفر (۵۲٪/۳) از افراد حاضر در این مطالعه کاردان و ۴۲ نفر (۴۷٪/۷) کارشناس بودند. نتایج نشان داد که گزینه «میزان کاربرد دروس تئوری اختصاصی در ارائه وظایف شغلی» به نظر شرکت کنندگان در مطالعه بالاتر از حد متوسط و در حد زیاد و بسیار زیاد بوده است. میانگین نمره سوالات مربوط به کاربرد کارآموزی‌ها در ارائه وظایف شغلی در افراد کاردان 3.42 ± 0.75 و در افراد کارشناس 3.56 ± 0.83 بود که تفاوت بین افراد کاردان و کارشناس معنی‌دار نبود. همچنین نتایج نشان‌دهنده آن بود که لزوم تغییر در برنامه آموزشی براساس نظر ۶۲٪ افراد کاردان و ۶۷٪ افراد کارشناس زیاد و خیلی زیاد بود.

نتیجه‌گیری: مطالعه حاضر نشان داد که اگر چه برنامه درسی رشته فوریتهای پزشکی تا حد زیادی با نیازهای شغلی آنان تطابق دارد ولی به طور کلی در بعضی قسمتها نیاز به تغییر دارد. همچنین عدم کسب مهارتهای لازم حین تحصیل در هنگام ارائه وظایف شغلی باعث ایجاد درجاتی از استرس در آنها شده بود.

کلمات کلیدی: برنامه آموزشی، شاغلین حرفه فوریتهای پزشکی، نیاز، وظایف شغلی

میثیکل ایمرجنسی دروس کا ڈاکٹروں کی نظر میں طبی پیشے کی ضرورت سے مطابقت کرنا یہ تحقیق مشہد یونیورسٹی آف میڈیکل کالج میں دوہزار پندرہ میں کی گئی تھی

بیک گراؤنڈ: علم طب میں تیز ترقی کے پیش نظر یہ سفارش کی جاتی ہے کہ میڈیکل نصاب با جائزہ لیا جاتا رہے اور ڈاکٹروں کی میڈیکل سروسز دینے والوں کے تقاضوں کے مطابق اس میں پیشرفت آتی رہے اس تحقیق کا هدف ایمرجنسی میڈیکل سروسز میں کام کرنے والوں کی نظر جاننا ہے۔ یہ تحقیق دوہزار پندرہ میں مشہد یونیورسٹی آف میڈیکل سائنس میں انجام پائی ہے۔

روش: اس تحقیق میں میڈیکل ایمرجنسی شعبے میں کام کرنے والے نواسی افراد کو شامل کیا گیا اور انہیں ایک سوالنامہ دیا گیا۔ اس سوالنامے کا تجزیہ ایس پی ایس ایس سافٹ ویئر سے کیا گیا۔

نتیجے: تحقیق میں شریک اکثریت نے کہا ہے کہ میڈیکل نصاب پر نظر ثانی کرنا سب کے حق میں ہے اور اس سے میڈیکل سروسز دینے والے افراد اور عوام کو فائدہ پہنچتا ہے۔

سفارش: اس تحقیق سے پتہ چلتا ہے کہ میڈیکل ایمرجنسی شعبے میں کام کرنے والے کے نصاب اور عملی کاموں میں مطابقت ہونا ضروری ہے لہذا نصاب میں تبدیلیاں آتی رہنی چاہیں۔

کلیدی الفاظ: میڈیکل نصاب، ایمرجنسی شعبہ اور مطابقت

INTRODUCTION

Providing outreach services to those who are in need in crises caused by different disasters and incidents exist in the nature of all human beings, and presence of outreach organizations in such conditions is necessary in every society. Emergency medicine field of study was established in the US in the 1960s as a professional expertise, and in many aspects it has experienced highly appropriate advances and revisions over nearly half a century ago. In Iran, Emergency Medical Services (Known as 115 Call Centers) that are responsible for providing emergency medical services did not experience any developments until 1997. During that year, the government proposed the plan of organizing the emergency centers as one of the priorities of the Iranian Ministry of Health and Medical Education. In the same regard, the general specifications of emergency medicine curriculum were approved on July 1, 2000 following the 8th session of the Supreme Council for Planning of Medical Sciences with the help of different experts. By enrolling students on a limited number of universities in 2002, educating the specialist workforce in this field stepped into a new stage. In 2006, due to the dire need for the skillful graduates, 30 universities of medical sciences started to teach and train students in this field (1).

Since human resources are the basis of health systems, they cannot enhance the health of their societies to a level that they can conduct a socially and economically productive life if they are not equipped with educational programs and plans appropriate to their professional needs (2). In the realm of education, needs assessment is considered as an essential and necessary component in the educational design process, and it is frequently referred to whenever the issue of educational design and adoption of educational measures is in question, and the logical basis in each program is the existence of a set of needs. Due to its fundamental and structural role, needs assessment is highly critical and significant, such that any mismatch, inconsistency, and defect in needs assessment can lead to problems in other parts of education design process(3). Examining and determining educational needs is one of the main inputs of the educational system and the main basis for planning, implementing, and evaluating the system's activities. In most cases, learners have to learn materials that have no practical use in their occupations. In addition to its consequences, this problem has two causes: 1) Inaccuracy in needs analysis, and 2) Lack of self-needs assessment in the process of needs assessment of the educational process. Therefore, the first barrier to the effectiveness of educational programs is the lack of their compliance with the needs of the students and candidates (4). Through identifying the most important needs, needs assessment is a basis for determining goals and creating an appropriate ground for managing other elements. Needs assessment refers to a systematic process to determine goals, specify the distance between two current states, goals, and finally determine priorities for action (in other words, needs assessment is the process of what to be taught). Therefore, the main realm of needs assessment is to determine what the students need to learn at university.

Therefore, the main application of needs assessment can be to focus on identifying the students' needs and in-service educational needs, and determining the future local, regional, and national needs of the educational system (5). As a result, by examining the compliance between the proposed educational programs and the occupational needs and compensating for the defects, the educational system can help enhance the quality of education. One of the measures that can play an important role in providing the necessary solutions to this critical issue is to get feedback from the graduates as the main customers and outputs of the educational systems (2, 6). Awareness of the students' viewpoints can be helpful not only for the curriculum designers, but also for the educational authorities, practitioners, and professors because of their role in the education process.

In spite of searching in the relevant resources available in Iran, no study that has particularly focused on emergency medicine experts and their occupational and professional needs was found. However, some researchers studied the professional needs of other groups of medical sciences. Toulabie et al (2006) reported that due to inadequate acquisition of knowledge and skill by the nursing and midwifery students in their schools, they had felt some degrees of tension to do their job after graduation. They have suggested that the curriculum of these two disciplines should be revised (2). Also, in another study on graduates of the BSc of Medical Records, the researchers found that it was needed a revision on the educational courses to be tailored to the job requirements for the graduates (7). Shirjang et al (2012) reported that there was not a perfect compliance between the curriculum of public health discipline and the job requirement from the viewpoint of the graduates (8). Since needs assessment and evaluation of the skill learners' and performers' opinion (perceived and expressed needs) are highly important, the present study was an attempt to examine the emergency medical technicians' viewpoints about the compliance of emergency medicine curriculum with their job duties while working as emergency medical technicians at health care centers affiliated with Mashhad University of Medical Sciences in 2015.

METHODS

The present descriptive cross-sectional study was carried out in 2015 on eligible emergency medicine technicians at Mashhad University of Medical Sciences. Number of required respondents were estimated at 96 people, although all of the eligible ones (N=89) included in the study. The data collection method was field-based and through a researcher-designed questionnaire. The latest curriculum adopted in the field of emergency medicine and the workers' job description (1, 9) were utilized to prepare the content of the questionnaire. The questionnaire included demographic items and questions about basic science, specific, practical, and internship courses, and the effect of them in meeting the emergency medicine workers' needs. In this regard, similar questionnaires were obtained from the conducted studies; however, according to the aims of the present study, it was necessary to revise them and prepare a new questionnaire.

In order to determine the validity of the questionnaire, the views of 10 professors in the emergency medicine field of study were utilized. And to determine its reliability and internal consistency, test-retest method was used on a number of individuals qualified for the study, and Cronbach's Alpha was calculated. The final version of the questionnaire consisted of 65 questions; 51 questions on the level of reaching the educational goals of the emergency medicine field of study, according to the job needs, and 14 questions on the important elements in the quality of educational programs. Finally, the questionnaire was proved to be valid and reliable.

By referring to the Emergency Medical Services Center and the Emergency Department of Imam Reza Hospital, copies of the designed questionnaire were distributed among the target participants who were consenting to enter the study. After the participants completed the questionnaires, they were collected, and after they were revised, the collected data were analyzed using SPSS Software Ver. 11.5.

RESULTS

The participants' average age was 28.59 ± 5.02 years and a range of 23 to 46 years. Forty-six participants (52.3%) had an associate's degree and 42 (47.7%) a bachelor's degree (B.Sc.).

In order to compare the mean scores of the questions related to the application of the basic courses in accomplishing job duties among the participants with associate's and bachelor's degrees, first, Kolmogorov-Smirnov test was run in the two subgroups (associate's and bachelor's individuals) in order to check the type of distribution of mean score variable, and the results showed that the distribution of the variable was normal in both groups ($p > 0.05$). Also, parametric

independent t-test was run in order to compare the mean score of the questions about the application of the basic courses in accomplishing job duties among the participants with associate's and bachelor's degrees. The mean score of the questions about the application of the basic courses in accomplishing job duties among the participants with associate's and bachelor's degrees was respectively 3.68 ± 0.53 and 3.69 ± 0.50 . Based on the results of the t-test, there was no significant difference between the two groups ($p = 0.942$).

The mean score of the questions about the application of specific and theoretical courses in accomplishing job duties was 3.94 ± 0.48 and 4.11 ± 0.50 among the participants with associate's and bachelor's degrees, respectively. The results of Mann-Whitney test showed that the two groups were not significantly different in terms of their mean scores on the questions about the application of specific and theoretical courses in accomplishing job duties ($p = 0.117$).

The mean score of questions related to "The application of internships in accomplishing job duties" was 3.42 ± 0.75 and 3.56 ± 0.83 among the participants with associate's degrees and bachelor's degrees, respectively. The results of Mann-Whitney test showed that mean scores on the questions about the application of internships in accomplishing job duties were not significantly different in the two groups ($p = 0.338$).

Table 3 presents the percentage of the answers to each option of question No.60 (Did the skills you acquired during your studies respond to your needs in the workplace?) among the participants with associate's degrees and bachelor's degrees. Mann-Whitney test showed that there was no significant difference between the answers to question no. 60 in the two groups ($p = 0.860$).

Table 1. Comparing the scores of the questions about the application of specific and theoretical courses in accomplishing job duties among the participants with associate's and bachelor's degrees

	N.	Mean	SD	Median	Interquartile range	Min.	Max.
Associate's	45	3.94	0.48	4.0	3.65-4.27	2.86	4.67
Bachelor's	42	4.11	0.50	4.03	3.87-4.47	2.73	5.0
Total	87	4.02	49	4.0	3.80-4.33	2.73	5.0
P-value*				0.117			
*Mann-Whitney Test							

Table 2. Comparing the scores of the questions about the application of internships in accomplishing job duties among the participants with associate's and bachelor's degrees

	N.	Mean	SD	Median	Interquartile range	Min.	Max.
Associate's	44	3.42	0.75	3.50	3.0-4.0	2	5
Bachelor's	42	3.56	0.83	3.75	3.0-4.0	1.5	5
Total	86	3.49	0.79	3.50	3.0-4.0	1.5	5
P-value*				0.338			
*Mann-Whitney Test							

Table 3. Comparing the percentage of the answers to each option of question No.60 among the participants with associate's degrees and bachelor's degrees

	Associate's		Bachelor's		Total	
	N	%	N	%	N	%
Not at all	0	0	1	2.4	1	1.2
Low	5	11.4	2	4.9	7	8.2
Average	9	20.5	12	29.3	21	24.7
High	21	47.7	15	36.6	36	42.7
Very high	9	20.5	11	26.8	20	23.5
Total	44	100	41	100	85	100
SD+Mean	3.77±0.91		3.80±0.98		3.78±0.94	
P-value*	0.860					
*Mann-Whitney Test						

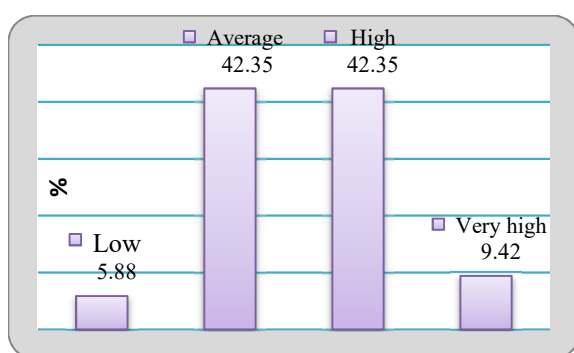


Diagram 1. Comparing the percentage of the participants' view on the necessity of making changes in the curriculum

The answers to question no.85 indicate the necessity of changing the curriculum based of the opinion of the participants. Diagram 1 indicates the percentage of the participants who answered each option of question no.85 referring to the necessity of changing the curriculum.

DISCUSSION

When unexpected events or diseases occur, it is remarkably complex and specialized to make decisions at the bedside of the patients or the injured in the incident area, and providing pre-hospital services in the shortest time play a significant role in surviving the injured and reducing the complications caused by the event or disease, and the key role of well-trained human resources in dealing with emergency and delivering pre-hospital care is undeniable.

The results of the present study showed that the mean score of the application level of basic courses in accomplishing job duties in both groups was above average. However, the results of the study carried out by Shirjang et al (2012), who examined the relevance of public health B.Sc. curriculum to job requirements and health system expectations, showed that the application of the basic courses was lower than other courses (8). This difference can be attributed to the difference in the basic course of the emergency medicine field of study.

Comparing the mean score of the questions about the

application of specific and theoretical courses in accomplishing job duties, with 3.94 ± 0.48 and 4.11 ± 0.50 respectively, among the participants with associate's and bachelor's degrees, indicates that the participants believed that the application of these courses was average, high, and very high. According to the results of t-test, there was no significant difference between the two groups in terms of their opinion about the application of specific and theoretical courses in accomplishing job duties.

The mean score of the questions related to "The application of internships in accomplishing job duties" was 3.42 ± 0.75 among the participants with associate's degrees and 3.56 ± 0.83 among those with bachelor's degrees; however, this difference was not significant. The participants in the studies carried out by Toulabi (2), Shirjang (8), and Hajavi (7) also believed that internship courses had a large effect on accomplishing job duties. Moreover, the results of the study conducted by Motevasselian et al (2014) showed that using computers and CDs along with practical display led to a remarkable progress in the clinical knowledge and skills (measuring vital signs) among the nursing students (10). In their study, Williams et al (2016) emphasized the usefulness of simulation-based education and education in Australia in acquiring skills among the students (11). Also, in their study, Wessels et al (2015) highlighted the importance of simulation in teaching functional skills among EMS personnel and its effect on improving individual skills and enhancing patient safety and guideline-based care (12).

The participants referred to the impossibility of implementing university trainings in the workplace as one of the causes of their job dissatisfaction. Shirjang et al (2012) studied the relevance of public health B.Sc. curriculum to job requirements and health system expectations, and obtained similar results to those of the present study. The results of that study showed that the public health B.Sc. courses had an average application in the individuals' occupational activities, and that the graduates of this major had a relatively average satisfaction with their training course. It was also concluded that the content of the courses and the educational curriculum of public health major were not compliant with the graduates' occupational needs (8). Regarding the answers given to the question, "To what extent

has failure to acquire necessary skills related to your field of study caused you to experience psychological stress?" many of bachelor and associate degree participants reported an average level of stress. However, the results of Mann-Whitney showed that this difference was not significant. It means that failure to acquire necessary skills related to the field of study during training imposed some degrees of psychological stress on the workers in this field. In the study conducted by Toulabi et al (2008), failure to learn necessary skills imposed more psychological stress on the nursing graduates (37.1%) than the midwifery graduates (22.4%) (2).

The results of the present study showed that the total satisfaction with the curriculum was high and very high, according to the viewpoints of 45.5% and 56.8% of the participants with associate's and bachelor's degrees, respectively. In their study carried out in Australia, O'Brien et al (2014) puts emphasis on the necessity of training EMS technicians after being employed and while providing service (13).

With regard to the participants' opinion about the necessity of changing the curriculum, the results of the present study showed that the necessity to change the curriculum according to 62.2% of the participants with an associate's degree and 67.6% of the participants with a bachelor's degree was high and very high. In a similar study, Hajavi et al (1999) examined the opinion of the graduates working in medical documents about the relationship between curriculum and work at hospitals, the effect of university trainings on the level of competence at work, and the significance of different courses according to the graduates. Given the importance of some courses and insignificance of some others in the bachelor's and associate's levels, the results of their study showed that it was necessary to change the curriculum. The content of the university curriculum needs to be changed, and this change should be in a way that it is compliant with the efficiency and the need of the medical documents wards in hospitals (7). In that study, similar results were obtained, but the viewpoints of the students of

the two levels were not compared with regard to the courses. The results of the study carried out by Maleknejad Yazdi (2009) showed that theoretical courses and logbooks needed to be revised (6). Moreover, the results of the study conducted by Toulabi et al (2008) indicated that the nursing and midwifery graduates' professional needs were not comprehensively covered in the curriculum. It seems to be necessary to change the curriculum and adopt necessary measures to achieve the professional goals and train skilled and productive manpower (2).

CONCLUSION

The results of the current study showed that the curriculum of the emergency medicine field of study is for an average and high extent compliant with the graduates' job description, but the workers in this field believe that general changes need to be made in it. General satisfaction with the B.Sc. curriculum was more than that of associate's level. One of the causes of such dissatisfaction was mentioned as the impossibility to implement the university trainings in the workplace. Moreover, failure to acquire necessary skills during education leads to some degrees of psychological stress while accomplishing job duties. According to the results, the B.Sc. participants believed that they had less management and leadership power than those with associate's degrees. It seems that increasing the number of internship courses expose the students more on real workplaces, helps them acquire more experience in different critical situations, and reduces their psychological stress caused by lack of work preparation among emergency medicine workers, so they can be more prepared to deal with different crises.

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